Chapter 3

Procedural Information

SECTION I - PLATFORM AND HONEYCOMB PREPARATION

INSPECTING PLATFORM

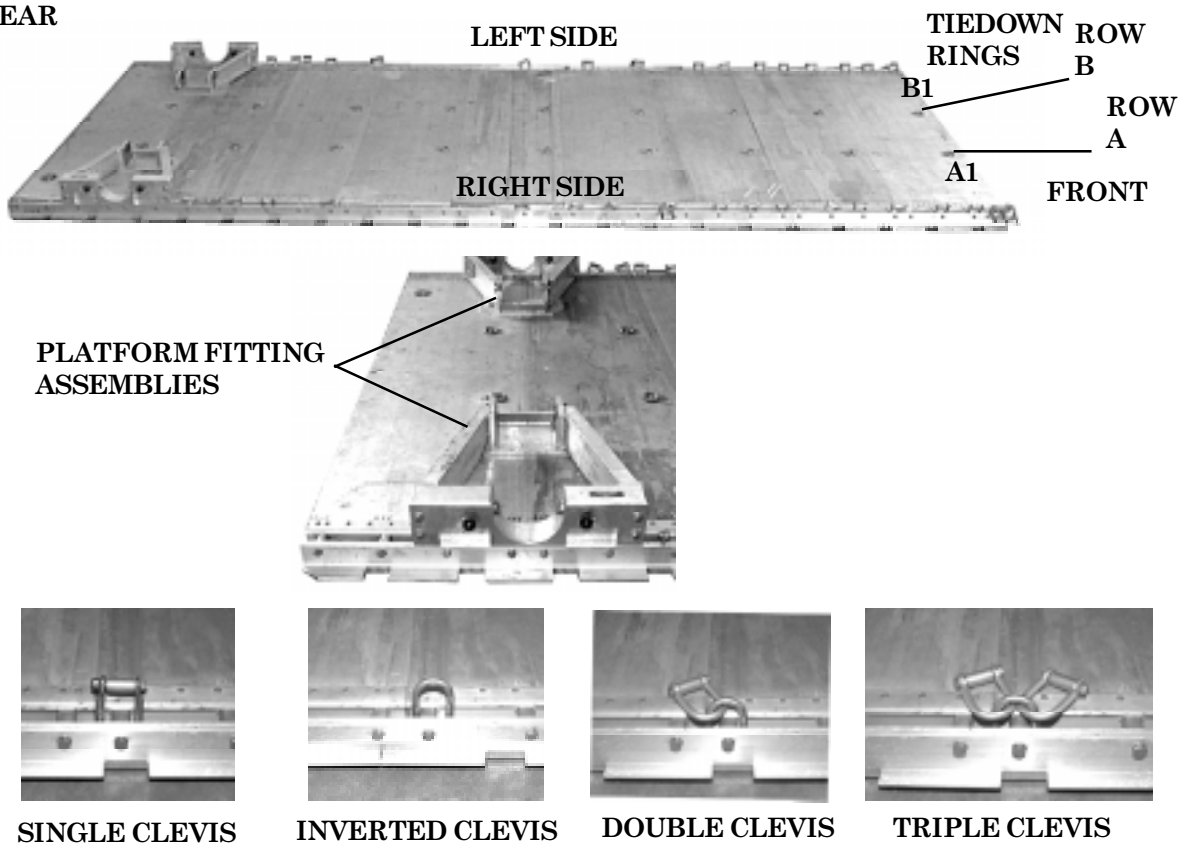
3-1. The DRAS platform is inspected, or assembled and inspected, as outlined in TM 10-1670-268-20&P/TO 13C7-52-22.

PREPARING THE PLATFORM

3-2. The platform must be prepared by attaching outrigger link assemblies and the outrigger platfrom support weldments according to TM 10-1670-268-20&P/ TO 13C7-52-22 . Install the clevises according to the specific rigging chapter. Figure 3-1 gives an example of how to bolt the clevises to the bushings in the platform side rails and how to number them.

SUSPENDING DRAS PLATFORM LOADS AND SAFETY TIEING SUSPENSION SLINGS

3-3. The DRAS platform is suspended using 3-foot and 11-foot (4-loop), type XXVI nylon slings as shown in Figure 3-2. The clevis positions will be given in the specific chapter for the load being rigged. Safety tie the suspension slings as shown in Figure 3-2.



Step:

1. Install the outrigger link assembly and the outrigger platform suppport weldment according to TM 10-1670-268-20&P/ TO 13C7-52-22.

2. Bolt the clevises to the bushings in the platform rails as shown in the specific rigging chapter.

3. Starting at the front of the platform, number the clevises bolted to the right side beginning with 1 and those bolted to the left side beginning with 1A.

4. Starting at the front of the platform, number the two tiedown rings in the panels A and B from right to left. Starting with the first panel, number the tiedown rings beginning with 1 from front to rear.

NOTES:

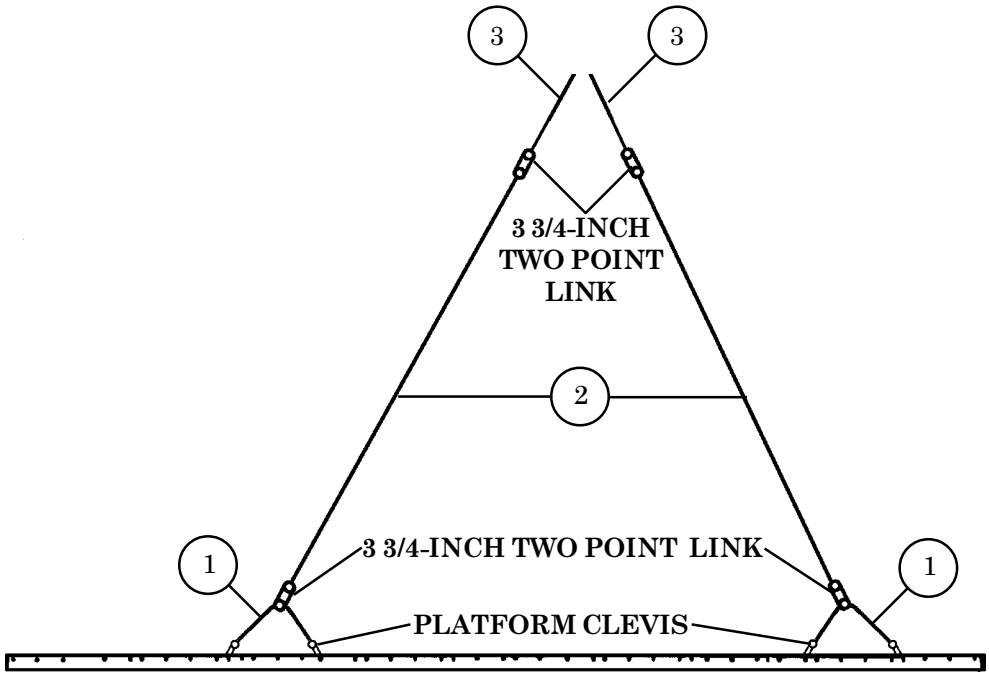
1. **The single clevis is sometimes installed in an inverted manner if the specific rigging chapter calls for it.**

2. **One clevis is sometimes installed on another inverted clevis. This is called a double clevis.**

3. **Two clevises attached to an inverted clevis is called a triple clevis. The two clevises will be numbered as two separate clevises. Do not number the inverted clevis.**

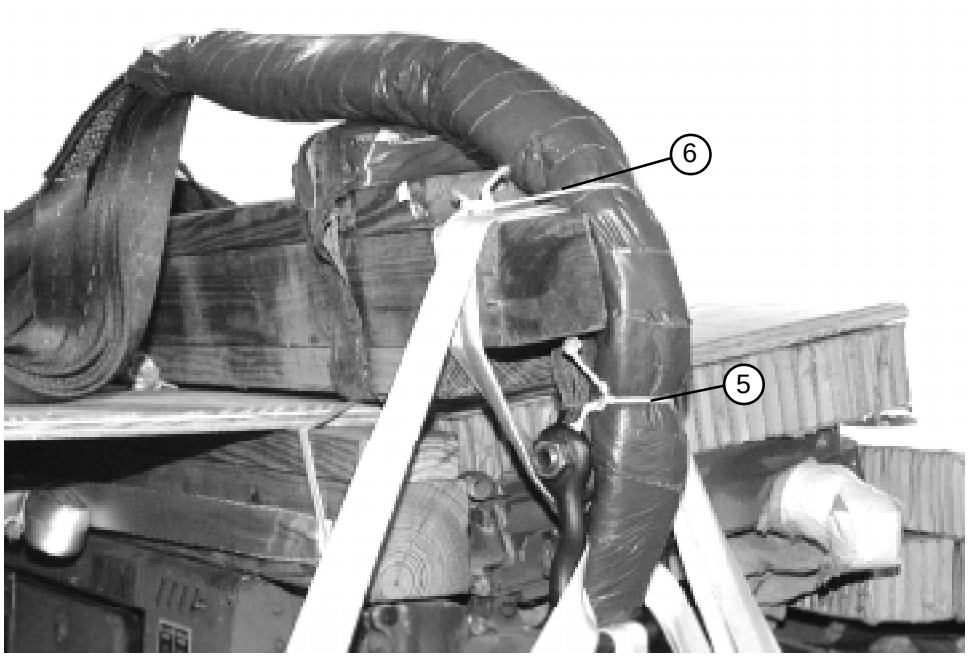
Figure 3-1. DRAS Platform Prepared

NOTE: This drawing is not drawn to scale.



1. Attach a 3-foot (4-loop), type XXVI nylon sling to the platform clevises listed in the specific rigging chapter.
2. Connect an 11-foot (4-loop), type XXVI nylon sling to the center of each 3-foot sling with a 3 3/4-inch two point link.
3. Connect an additional 3-foot (4-loop), type XXVI nylon sling to the end of each 11-foot sling with a 3 3/4-inch two point link.
4. Pad the top 3 3/4-inch two point links with felt and secure the felt with cloth backed tape (not shown).

Figure 3-2. Suspension System and Safety Ties Installed



(5) Remove all slack from the slings. Tie a length of type III nylon cord around the 11-foot sling and the ACS sling.

(6) Tie a length of type III nylon cord around the 11-foot nylon sling, behind all lashings, and the 4 by 4-inch lumber of the ACS and tie the ends together.

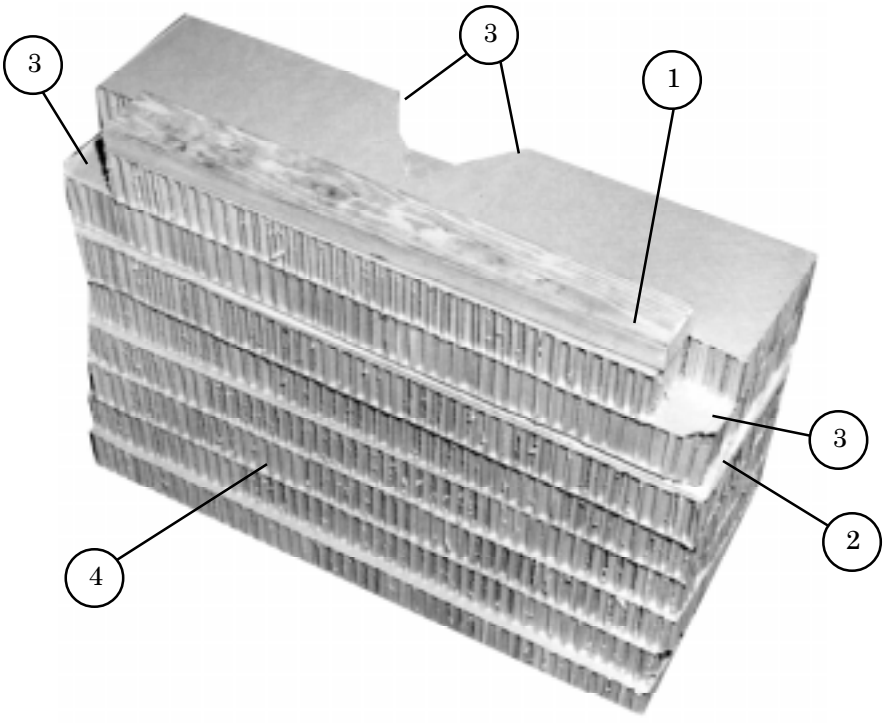
(7) Repeat steps 5 and 6 on all slings (not shown).

Figure 3-2. Suspension System and Safety Ties Installed (continued)

BUILDING HONEYCOMB STACKS

3-4. Honeycomb stacks must be prepared according to the specific rigging chapter. Honeycomb is used to absorb the landing shock. Figure 3-3 shows a typical honeycomb stack.

NOTE: When honeycomb stacks are longer than 96 inches or wider than 36 inches, alternate the layers to build a solid, cohesive stack.



1 Lumber

2 Plywood

3 Cutouts or notches

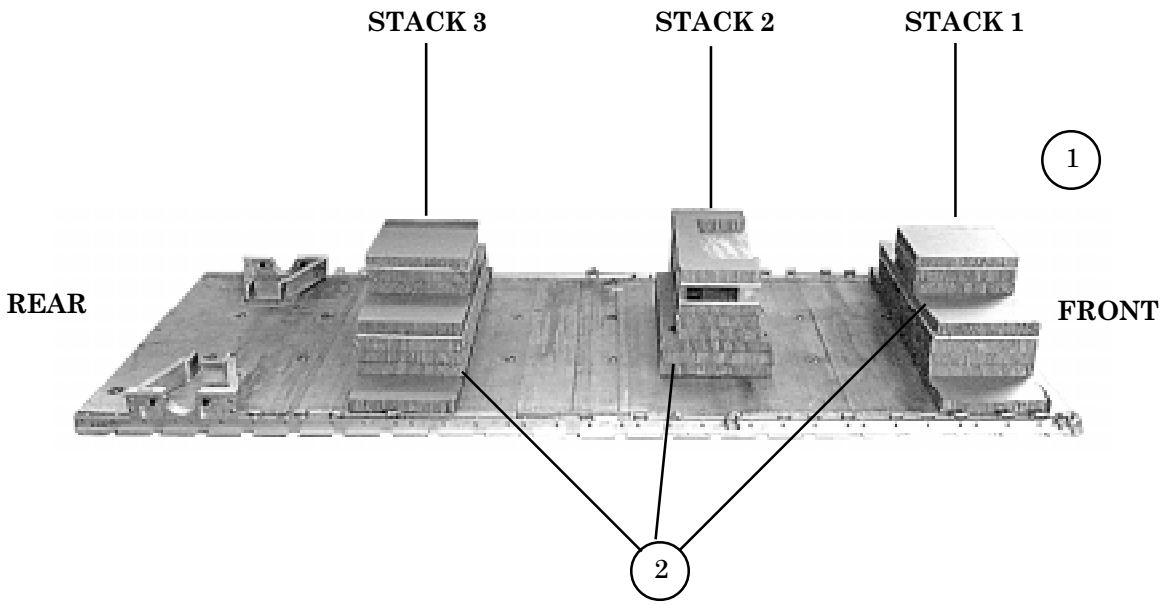
4 Layers of honeycomb

Note: Glue the layers of the stack together.

Figure 3-3. Typical Honeycomb Stack

PLACING HONEYCOMB STACKS

3-5. Honeycomb stacks must be set on the platform according to instructions in the specific rigging chapter. Figure 3-4 shows a typical placement of honeycomb stacks on a DRAS platform.



1 Place the honeycomb stacks on the platform according to instructions in the specific rigging chapter.

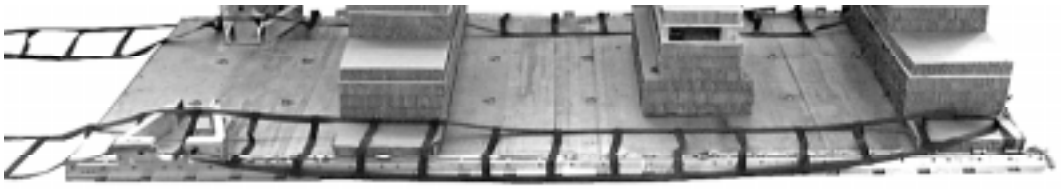
NOTE: Do not glue the stacks to the platform.

2 Number the stacks from front to rear in a numerical sequence with 1 at the front of the platform.

Figure 3-4. Typical Placement of Honeycomb Stacks on DRAS Platform

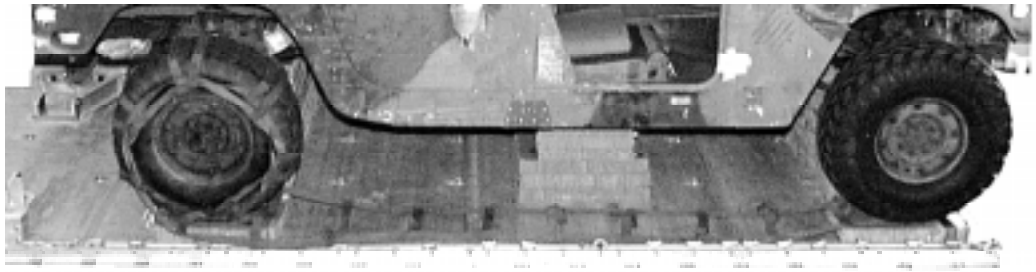
DRIVE-OFF AID AIRDROP

3-6. The drive-off aid may be used with the HMMWV truck. The drive-off aid, showing the front platform attachment (Figure 3-5), consists of a fabric track constructed of type X webbing sewn into a ladder-type configuration. The system is placed on two of the identified vehicle's tires and attached to the DRAS platform with type V webbing or 1-inch tubular nylon webbing. There are two tracks to each system. Each track is 30 feet long and 22 inches wide and weighs 21 pounds. When powered up, the vehicle (with tiedown assemblies removed), will progressively wrap the webbed ladder around the two tires (using the platform for leverage) and pull itself clear of the honeycomb and platform.



FRONT PLATFORM ATTACHMENT

NOTE: If the vehicle is to be driven off the front of the platform, tie a length of type V nylon webbing or 1-inch tubular nylon webbing from the first bushing through the end loop of the drive-off aid, and through the nearest tie-down ring. When attaching the drive-off aid to the platform using type V or 1-inch tubular webbing, tie the free ends with a ring bend knot as shown in Figure 1-1. Tie the drive-off aid to tie-down rings or platform bushings with type I, 1/4-inch cotton webbing.



NOTE: Wrap the drive-off aid around the wheel of the vehicle on each side as shown. Tie the end loop of each drive-off aid to the nearest cross piece with a doubled length of type I, 1/4-inch cotton webbing. Wrap the drive-off aid around the wheel until the webbing lays flat on the platform, but is not under tension. Tie the drive-off aid to adjacent tie-down rings or platform bushings on each side with type I, 1/4-inch cotton webbing.

Figure 3-5. Drive-off Aids Installed on Platform

SECTION II - ACCOMPANYING LOAD AND DROP ITEMS

STOWING ACCOMPANYING LOADS

3-7. Each specific rigging chapter contains the weight limitations, placement, and any additional restrictions on accompanying loads.

CAUTIONS

1. Accompanying loads may vary, however, accompanying load locations will not.
2. Only ammunition listed in FM 10-500-53/ MCRP 4-3.8/TO 13C7-18-41 may be rigged for airdrop.
3. Hazardous materials must be packaged, marked, and labeled as required by AFJMAN 24-204/TM 38-250.
4. At least two layers of honeycomb must be placed under all ammunition rigged for airdrop unless the specific rigging chapter states differently.

PREPARING DROP ITEMS

3-8. Some items need to be prepared for rigging. This preparation can include removing, reinforcing, stowing, and securing components. Detailed preparation instructions will be included in the specific rigging chapter.

COVERING LOAD

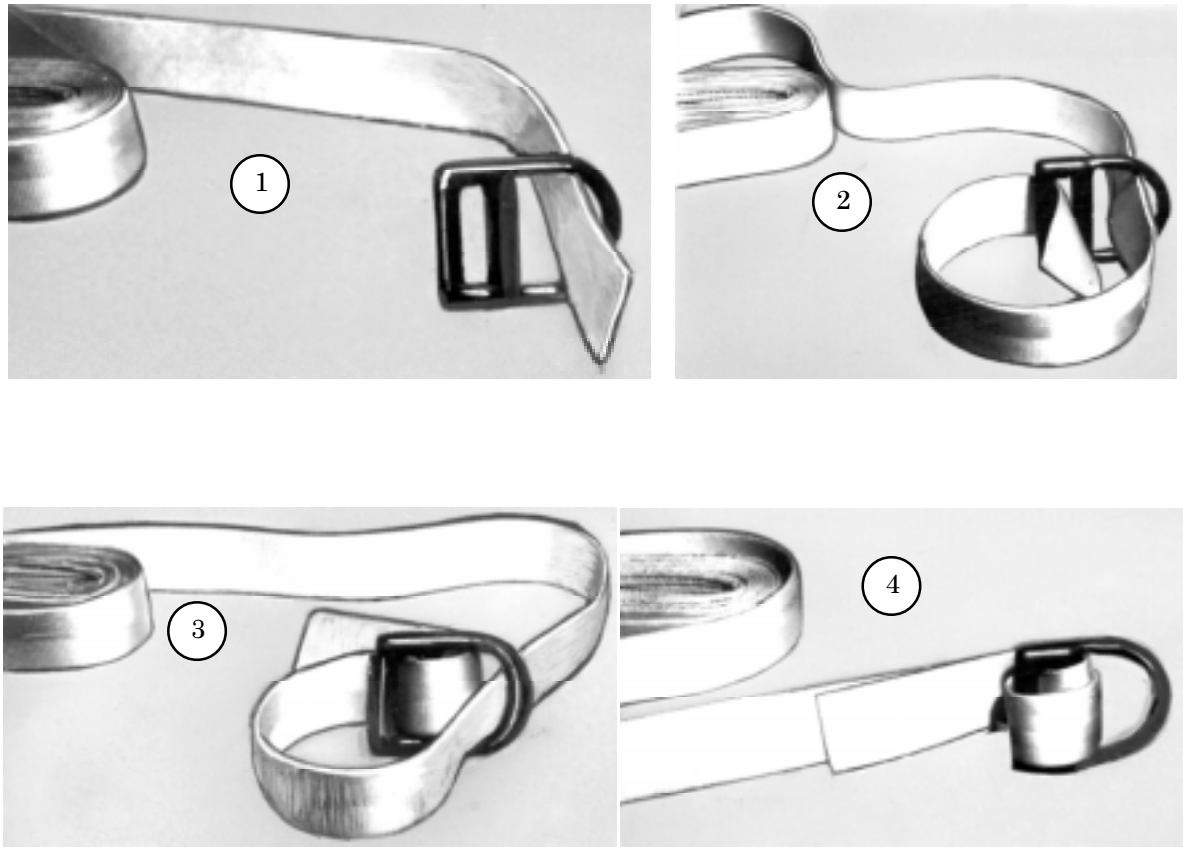
3-9. Covers may be needed to protect the load and keep the suspension slings from fouling. To keep the load from being damaged by falling hardware such as parachute releases, it may be necessary to cover portions of the load with honeycomb or cloth protectors. If a cover is needed, the specific rigging chapter will include this information and the procedures for its installation.

FITTING D-RINGS

3-10. Fit a D-ring to the end of each tiedown strap as shown in Figure 3-6.

LASHING LOAD

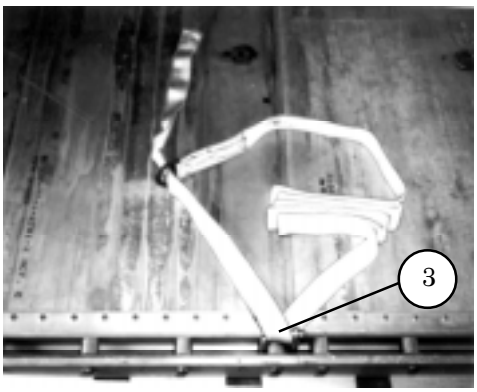
3-11. Lash a DRAS load to the platform according to the instructions in the specific rigging chapter. Install the lashings as shown in Figures 3-7 and 3-8.

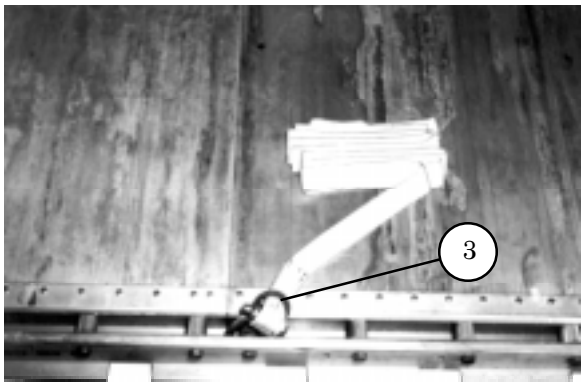


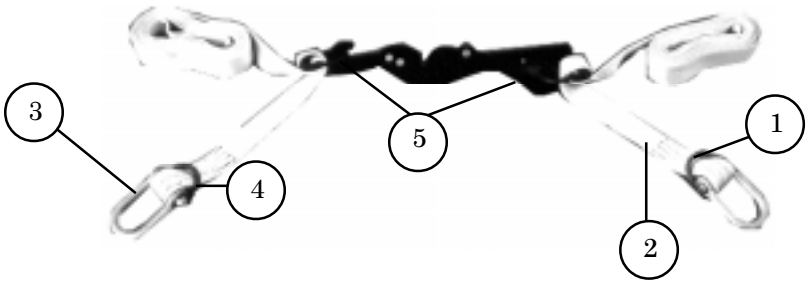
1. Run the free end of the tiedown strap through the large opening in the D-ring.
2. Run the strap around and through the small opening in the D-ring.
3. Run the strap back through the large opening in the D-ring.
4. Pull the strap taut.

Figure 3-6. D-Ring Fitted to Tiedown Strap

CAUTION
Do not tighten the lashings so tight that they cause the platform to bow especially in the aircraft.







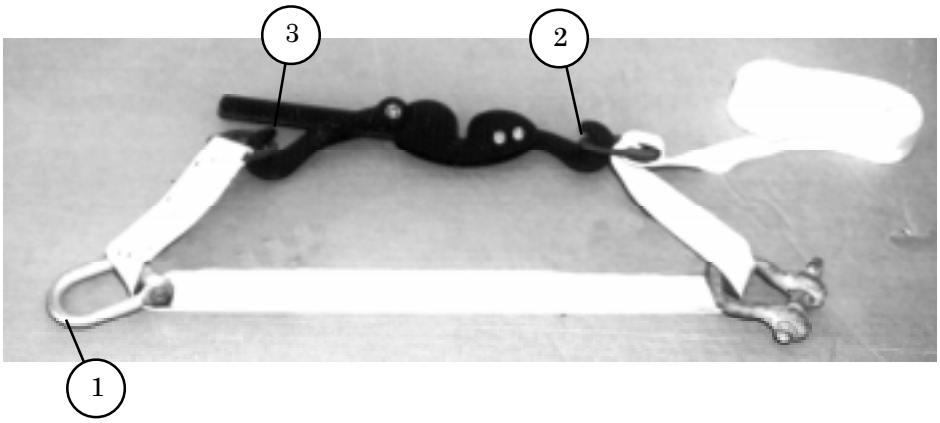
1. Pass the free end of one tiedown strap through a clevis on the right rail and through its own D-ring. Pull the strap taut.
2. Run the free end of the strap up over the load.
3. Pass the free end of a second tiedown strap through a clevis on the left rail and through its own D-ring. Pull the strap taut.
4. Run the free end of the strap up over the load.
5. Fit a D-ring on the free end of each strap as described in Figure 3-6, and place the D-rings on the hooks of a load binder. Safety the binder handle closed as shown in Figure 3-9.

NOTES:

1. When the tiedown strap length is not a factor, it is permissible to use a single tiedown strap and D-ring with a load binder attached directly to a side rail clevis or tiedown ring.

2. Pad all sharp edges that may touch the strap with cellulose wadding or other suitable material.

Figure 3-7. Single Line Lashing

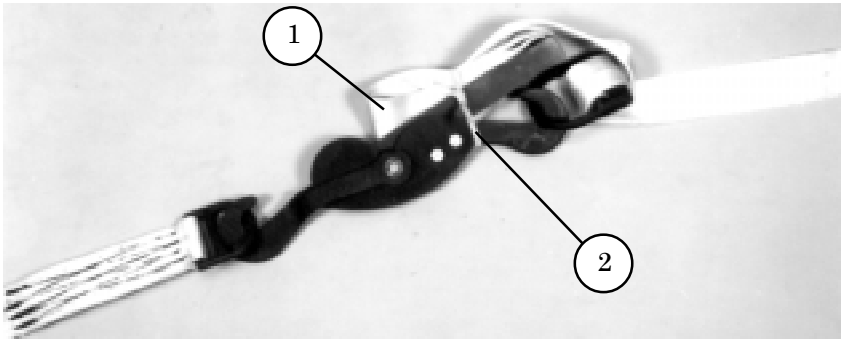


1. Pass the free end of a tiedown strap through a clevis on a rail and up and over, around, or through the indicated tiedown provision on the load. The tiedown provision will be listed in the specific rigging chapter for a particular load. Run the strap back toward the clevis.
2. Fit a D-ring to the free end of the strap (Figure 3-6), and place the D-rings on the hooks of a load binder. Close the handle of the load binder pointing toward the platform.
3. Safety the binder handle closed as shown in Figure 3-9.

Figure 3-8. A Looped (Floating Binder) Lashing

SAFETY TIEING LOAD BINDER HANDLES

3-12. Fold the excess tiedown strap, and place the folds alongside the load binder handle. Safety tie the load binder handle closed as shown in Figure 3-9.

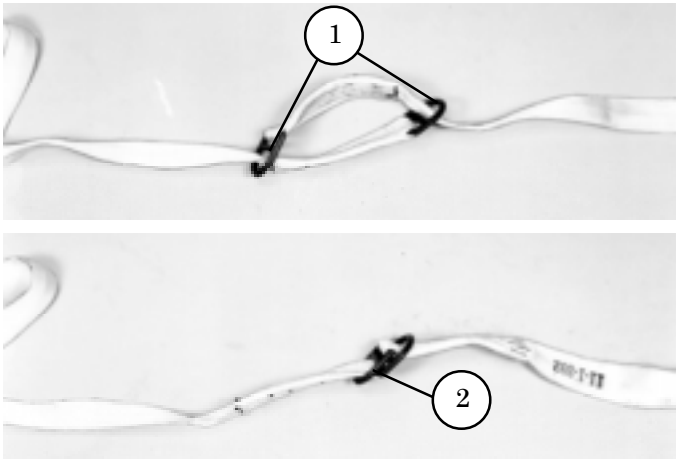


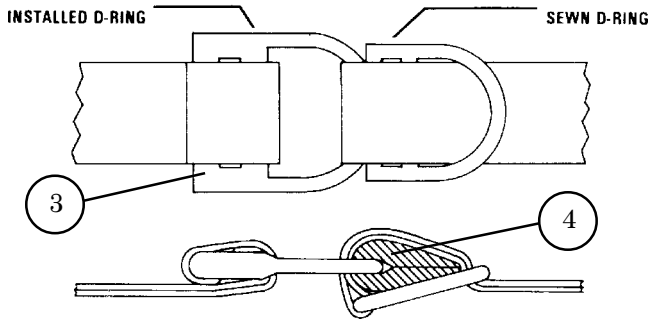
1. After the handle of the load binder has been closed, fold or roll any excess tiedown strap and place the folds alongside the load binder handle.
2. Tie the folded webbing to the binder and the binder handle closed with a single length of type I, 1/4-inch cotton webbing.

Figure 3-9. Load Binder Handle and Excess Webbing Safety Tied

FORMING A 30-FOOT, 45-FOOT, OR GREATER LENGTH TIEDOWN STRAP

3-13. When needed, attach 15-foot tiedown straps together to form a 30-foot, 45-foot, or greater length tiedown strap as shown in Figure 3-10.





1. Run the free end of two 15-foot tiedown straps through the D-ring of the opposite strap to form a 30-foot strap.
2. Pull the straps taut.
3. Install a D-ring on a free end of the 30-foot strap. Pass the free end of a 15-foot tiedown strap through the installed D-ring and back through its own D-ring to form a 45-foot or greater strap.
4. Insert a 2- by 5-inch piece of 1/2-inch felt around the installed D-ring.

NOTE: Make sure the felt is centered around the installed D-ring.

Figure 3-10. A 30-Foot, 45-Foot, or Greater Length Tiedown Strap Formed

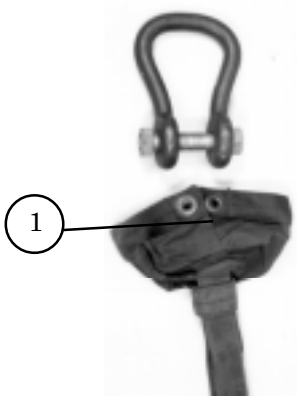
SECTION III - CARGO PARACHUTES

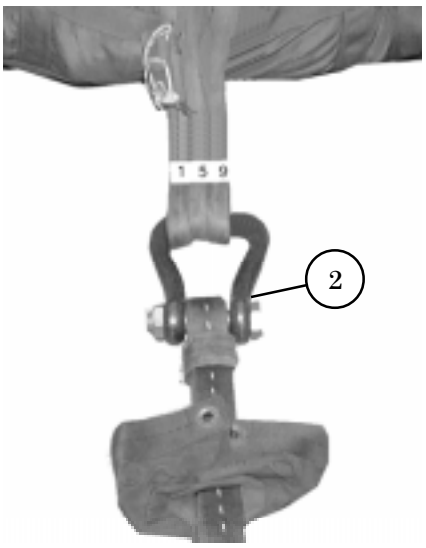
RISER EXTENSIONS

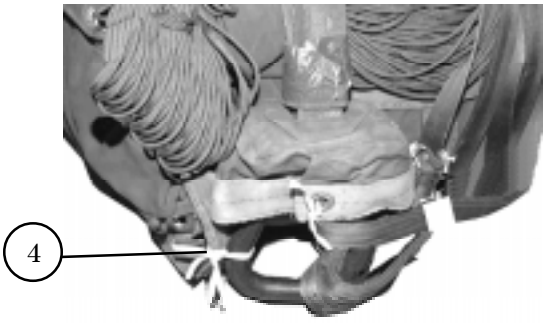
3-14. The risers of a cluster of G-11D cargo parachutes used on DRAS loads must be extended (lengthened). The length of the extension needed for the cluster is given in Table 2-4.

a. Forming Extensions. Only continuous riser extensions may be used.

b. Bolting Extensions to Risers. Bolt the riser extension to the risers of a cargo parachute as shown in Figure 3-11.







1. Slip a clevis cover on one end of a riser extension.
2. Fit the sling on the bolt of the clevis running through the parachute risers.

CAUTION
The nuts must be tight enough to keep them from loosening during transport and airdrop.

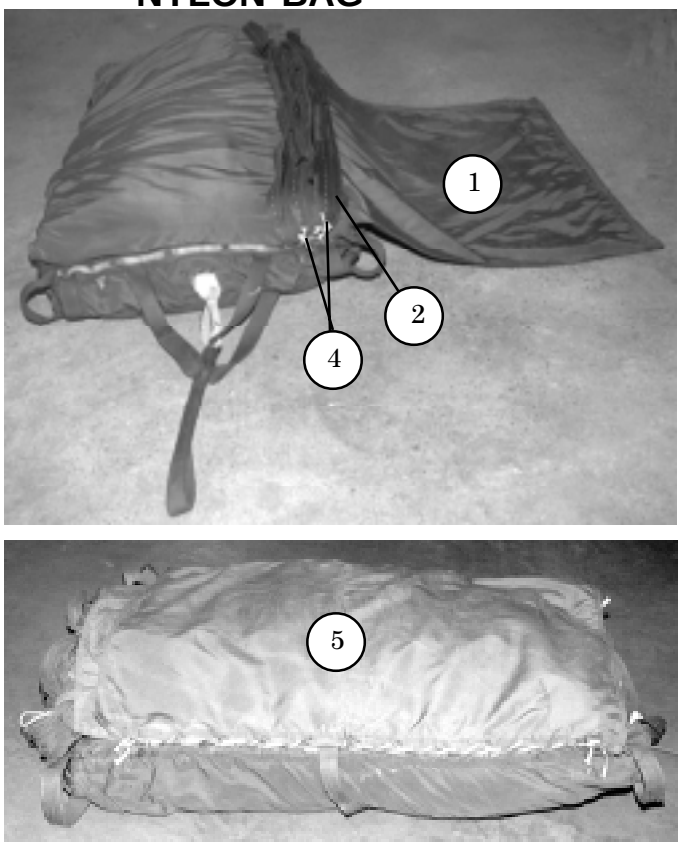
3. Slide the clevis cover up over the bolt of the clevis, and tie the cover in place with a length of type I, 1/4-inch cotton webbing. Pass the tie through the grommets of the cover.
4. Tie the clevis to the left bottom bag carrying handle with one double length of type I, 1/4-inch cotton webbing.

Figure 3-11. Riser Extension Bolted to Risers

STOWING RISER EXTENSIONS

3-15. The riser extensions for the G-11D cargo parachutes must be stowed as shown in Figures 3-12 and 3-13.

NOTE: The nylon deployment bags have the riser extension securing line permanently attached.



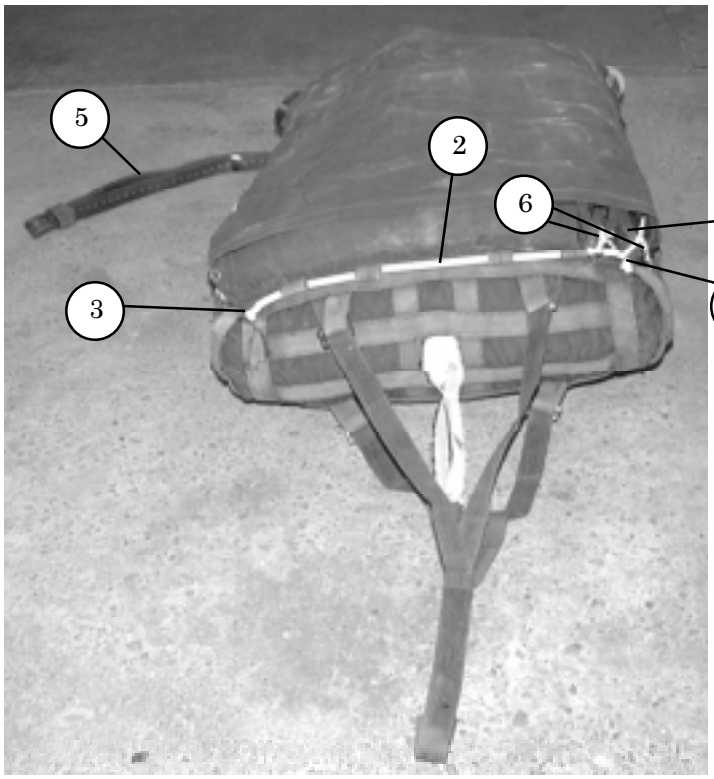
1. Open the riser extension flap which is attached with type I, 1/4-inch cotton webbing.
2. Start at the end of the riser extension fitted to the clevis and S-fold the extension into the riser extension compartment.
3. Leave approximately 3 feet of the free end of the extension outside the riser end of the compartment. (Not shown)
4. Tie each stow to the riser extension securing line with one turn double, type I, 1/4-inch cotton webbing.

CAUTION
Do not girth hitch the type I, 1/4-inch cotton webbing ties to the riser extension securing line.

5. Close the riser flap according to TM 10-1670-280-23&P/TO 13C5-31-2.

Figure 3-12. Riser Extension Securing Line Installed and Riser Extension Stowed

COTTON BAG



1. Fold an 8-foot length of 1/2-inch tubular nylon webbing in half lengthwise. Run the loop in the folded end through the left carrying handle. Run the free ends of the webbing through this loop, and pull the webbing taut.

2. Run the webbing across the parachute, passing it through the riser extension retaining loops (end tabs).

   NOTE: Do not pull the webbing tight across the parachute.

3. Tie the webbing to the right top carrying handle with three alternating half hitches and an overhand knot in each free running end.

4. Start at the end of the riser extension fitted to the clevis and S-fold the 20-foot extension into the riser extension compartment.

5. Leave about 3 feet of the free end of the extension outside the riser end of the compartment.

6. Tie each stow to the riser extension securing line with ties of one turn double type I, 1/4-inch cotton webbing.

CAUTION
Do not girth hitch the type I, 1/4-inch cotton webbing ties to the riser extension securing line.

Figure 3-12. Riser Extension Securing Line Installed and Riser Extension Stowed (Continued)

NYLON BAG

20-FOOT RISER EXTENSION STOWED

60-FOOT RISER EXTENSION STOWED

60-FOOT RISER EXTENSION STOWED

Figure 3-13. The 20- and 60-Foot Riser Extensions Stowed

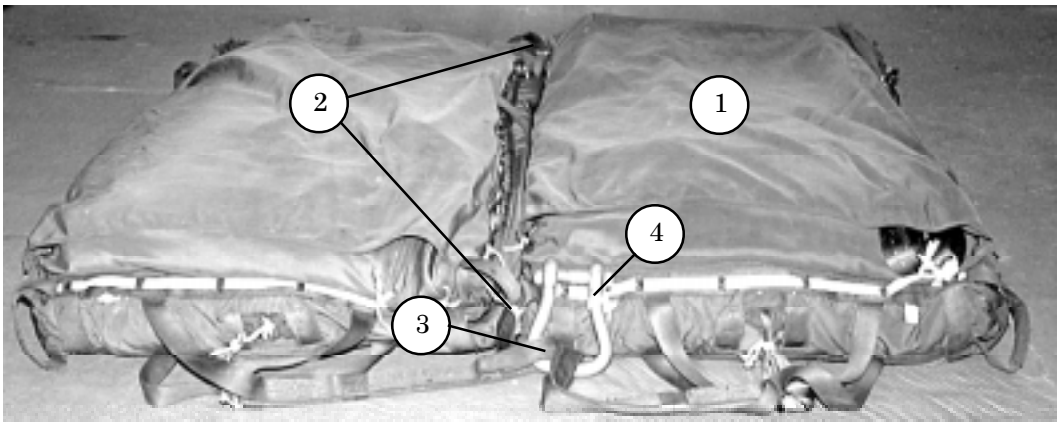
STOWING CARGO PARACHUTES

3-16. When referring to cargo parachutes, stowing consists of three steps. First, place the cargo parachutes on the load or on a parachute stowage platform. Second, cluster the parachutes by tying their deployment bags handles together. Third, group the bridles on a large clevis. Stow the parachutes as shown in Figures 3-14 through 3-16.

Note: Nylon and cotton bags may be mixed on the same load.

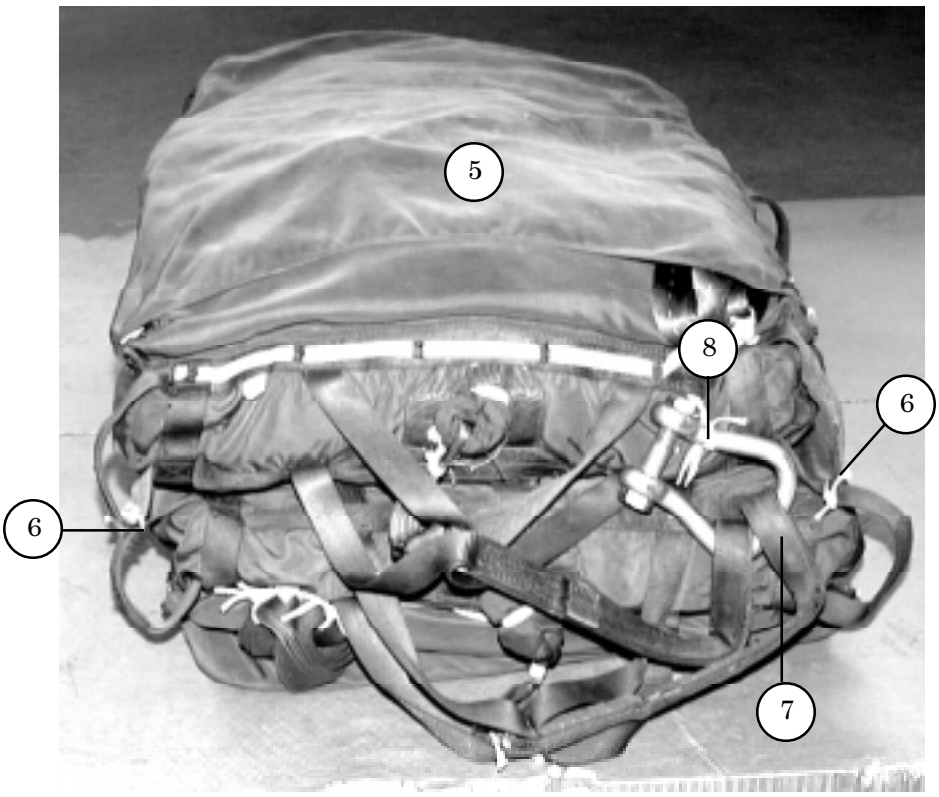
USING DEPLOYMENT LINES

3-17. The deployment line for DRAS loads is a 3-foot (4-loop), type XXVI nylon webbing sling. One end of the deployment line is fitted on a 3 3/4-inch two point link attached to the adapter web of the deployment parachute. The other end of the line is fitted to the bolt of the large clevis grouping the bridles of a cluster of parachutes.



1. Set two parachutes side by side on the load with the riser compartments up and the bridles toward the front of the platform.
2. Tie the inside front and rear cluster attaching loops (hereafter called carrying handles) together with one turn single type III nylon cord.
3. Fit the bridle loops on the arms of a large clevis. Ensure the bolt of the clevis faces up.
4. For the nylon bag, tie the clevis to the right parachute restraint strap loop with a length of doubled type I, 1/4-inch cotton webbing. Secure with a surgeon's knot and a locking knot. For the cotton bag, tie the clevis to the right bridle attaching loop with a length of one turn double type I, 1/4-inch cotton webbing. Secure with a surgeon's knot and a locking knot.

Figure 3-14. Two Parachutes Stowed



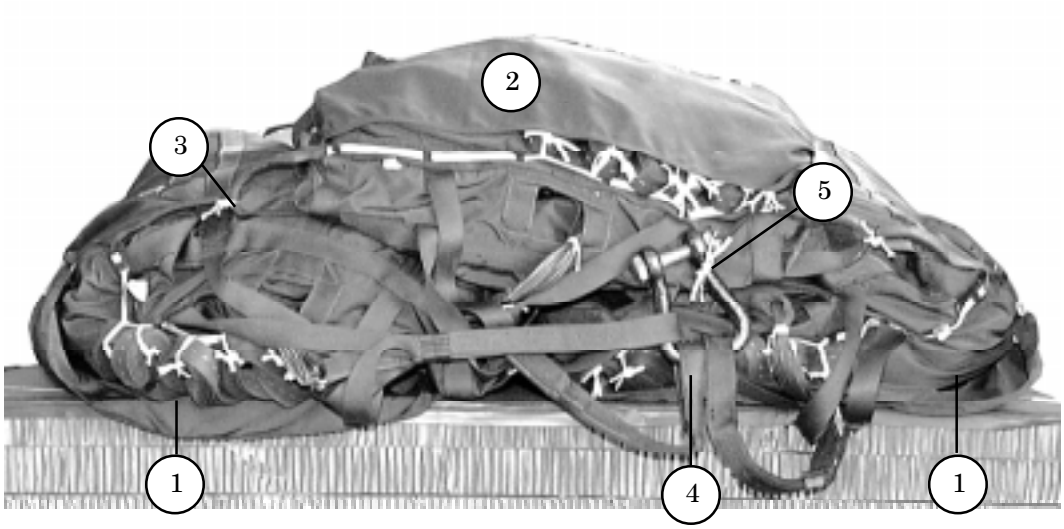
5 Stack two parachutes with the riser compartment of the bottom parachute down and the riser compartment of the top parachute up.

6 Tie the outside front and rear cluster carrying handles together with one turn single type III nylon cord.

7 Fit the bridle loops on the arms of a large clevis. Ensure the bolt of the clevis faces up.

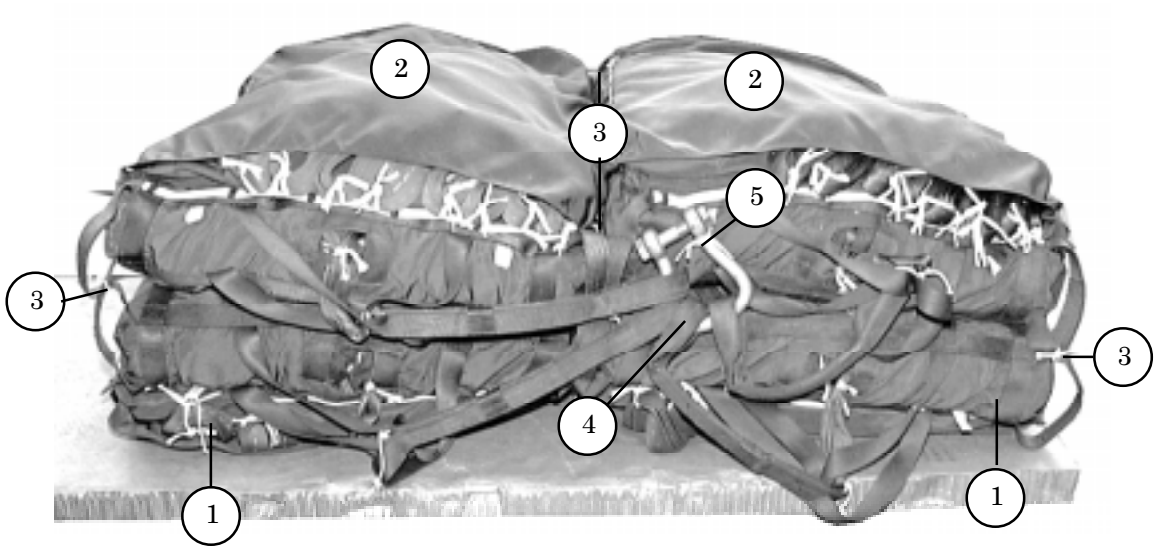
8 For the nylon bag, tie the clevis to the right parachute restraint strap loop with a length of one turn double type I, 1/4-inch cotton webbing. Secure with a surgeon's knot and a locking knot. For the cotton bag, tie the clevis to the right bridle attaching loop with a length of one turn double type I, 1/4-inch cotton webbing. Secure with a surgeon's knot and a locking knot.

Figure 3-14. Two Parachutes Stowed (continued)



1. Set two parachutes side by side on the load with the riser compartments down and the bridles toward the front of the platform.
2. Center one parachute on top of the two parachutes in step 1 above with the riser compartment up.
3. Tie the front and rear carrying handles together with onr turn single of type III nylon cord.
4. Fit the bridle loops on the arms of a large clevis.
5. For the nylon bag, tie the clevis to the top right parachute restraint strap loop with a length of one turn double type I, 1/4-inch cotton webbing. Secure with a surgeon's knot and a locking knot. For the cotton bag, tie the clevis to the top right bridle attaching loop with a length of one turn double type I, 1/4-inch cotton webbing. Secure with a surgeon's knot and a locking knot.

Figure 3-15. Three Parachutes Stowed



1. Set two parachutes side by side on the load with the riser compartments down and with bridles toward the front of the platform.
2. Set two parachutes side by side on top of the two parachutes in step 1 above with the riser compartments up.
3. Tie the four center front and four center rear carrying handles together with one turn single length of type III nylon cord. Tie the outside carrying handles together with type III nylon cord.
4. Fit the bridle loops on the arms of a large clevis.
5. For the nylon bag, tie the clevis to the top right parachute's left parachute restraint strap loop with a length of one turn double type I, 1/4-inch cotton webbing. Secure with a surgeon's knot and a locking knot. For the cotton bag, tie the clevis to the top right parachute's left bridle attaching loop with a length of one turn double type I, 1/4-inch cotton webbing. Secure with a surgeon's knot and a locking knot.

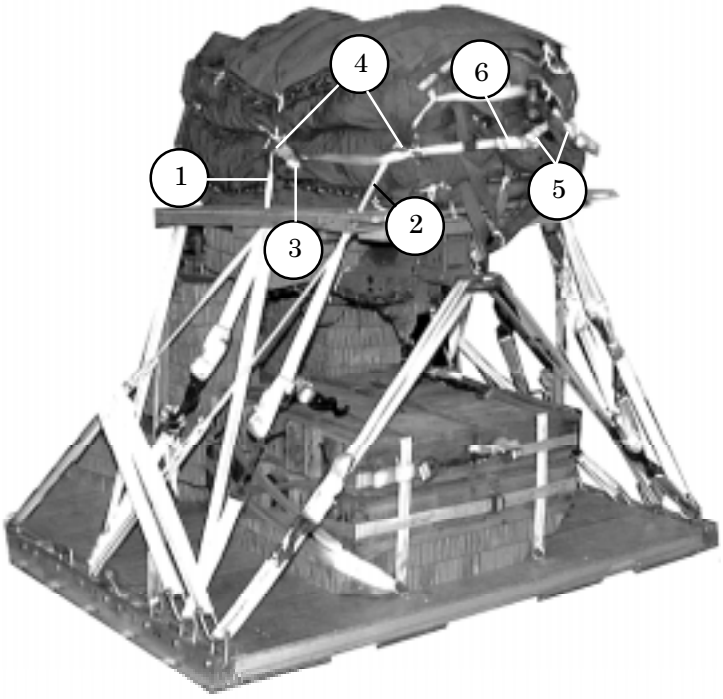
Figure 3-16. Four Parachutes Stowed

RESTRAINING TWO TO FOUR PARACHUTES

3-18. The following parachute restraint systems are used to restrain two to four cargo parachutes.

a. Two Parachutes. The restraint system for two cargo parachutes consists of two lengths of type VIII nylon webbing (restraint straps) and two multicut parachute release straps for the stacked configuration and one length of type VIII nylon webbing (restraint strap) and two multicut parachute release straps for the side by side configuration as shown in Figures 3-17 through 3-19.

NOTE: When a stowage platform is used, the restraint strap runs through the platform. Always use multicut parachute release straps in pairs.



1. Run the restraint strap through the center carrying handles on the left side of the parachutes, up to the top of the parachutes, and down through the center carrying handles on the right side of the parachutes. Tie the ends of the restraint strap to the load as described in Figure 3-22.

2. Run the second restraint strap through the front carrying handles of the left parachutes. Run the restraint strap through the bridle attaching loops of the top parachute for the cotton bags or through the parachute restraint strap loops for the nylon bag, and down through the front carrying handles of the right parachutes. Tie the ends of the restraint strap to the load as described in Figure 3-22.

3. Remove guillotine knives number 3 (Figure 2-3) from each multicut parachute release strap. Fold the unused loops, and tape the folds in place.

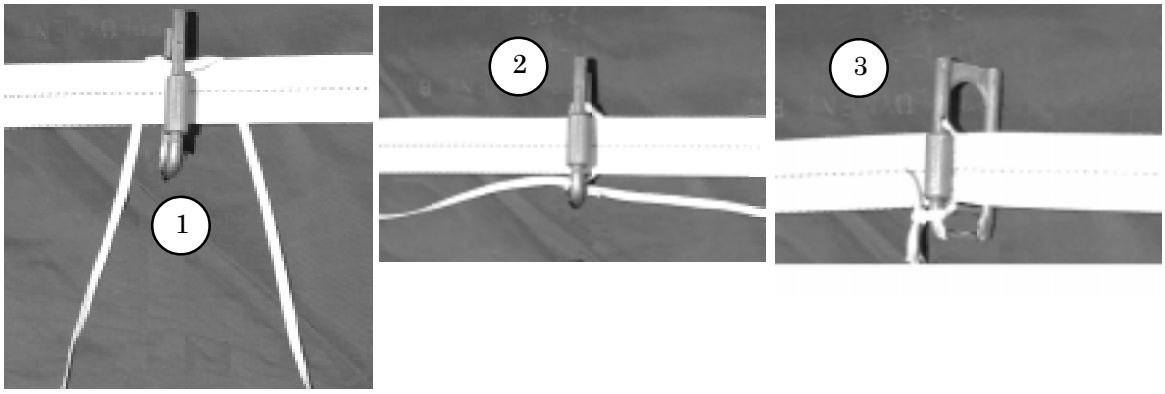
Figure 3-17. Multicut Parachute Release Straps Installed on Two Stacked Parachutes

4 Close each knife around the restraint strap, with the knurled nut out between the top and bottom carrying handles. Safety tie the guillotine knife as shown in Figure 3-18.

5 Tie the free end of each release strap to the large clevis grouping the bridles. Use three alternating half hitches and an overhand knot in each running end. Make sure that the parachute release straps are not routed under the parachute restraint or parachute bridles. Make sure that the release straps are shorter than the parachute bridles to ensure that the deployment force is applied to the strap before the bridles.

6 Fold or roll any excess strap, and tape the folds in place.

Figure 3-17. Multicut Parachute Release Straps Installed on Two Stacked Parachutes (continued)



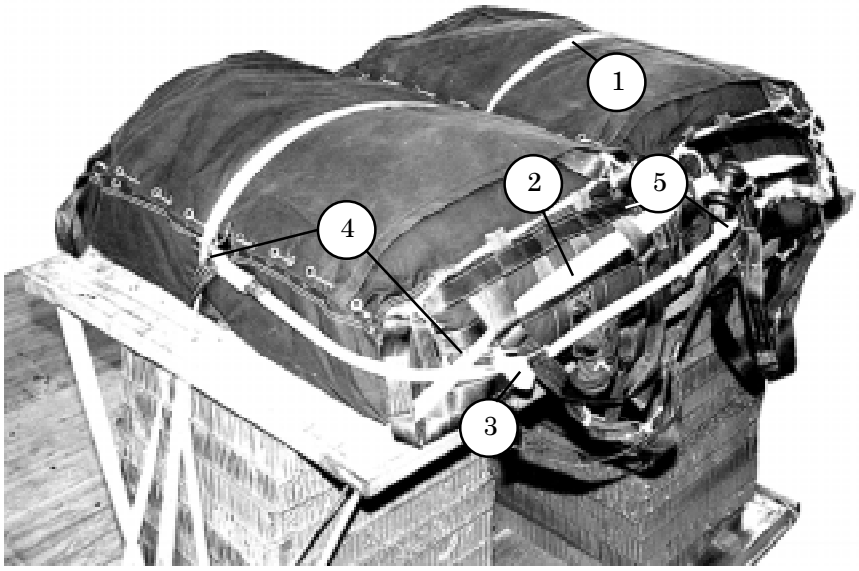
1 Close the knife around the restraint strap, knurled nut out. Thread a length of type I, 1/4-inch cotton webbing through the safety tie hole. Even the ends of the webbing, and run them under the restraint strap, and alongside the release knife.

2 Thread the end of the webbing on the left side of the knife rightward behind the bar of the knife. Thread the other end of webbing left in a like manner.

3 Bring the ends of the webbing up over the top of the bar. Tie the ends of the webbing together with a surgeon's knot and a locking knot.

Figure 3-18. Guillotine Knife Safety Tied

NOTE: When a stowage platform is used, the restraint strap runs through the platform. Always use multicut parachute release straps in pairs.



1. Run the restraint strap through the center carrying handle on the left side of the parachute. Run the restraint strap over the top of the parachute, and down through the left center carrying handle. Continue to run the restraint strap up through the right inside carrying handle. Run the restraint strap over the right parachute and down through the right outside carrying handle. Tie the ends of the restraint strap to the load as described in Figure 3-22.

2. Run the second restraint strap through the outside front carrying handle of the bottom left parachute, up through the top left front carrying handle and both bridle attaching loops of the top parachute for the cotton bags or through the parachute restraint strap loops for the nylon bag, and down through the outside front carrying handles of the top and bottom right parachute. Tie the restraint strap to the load as described in Figure 3-22.

3. Remove guillotine knife number 3 (Figure 2-3) from each of two multicut parachute release straps. Fold the unused loops, and tape the folds in place.

4. Close and safety tie the guillotine knives as shown in Figure 3-18.

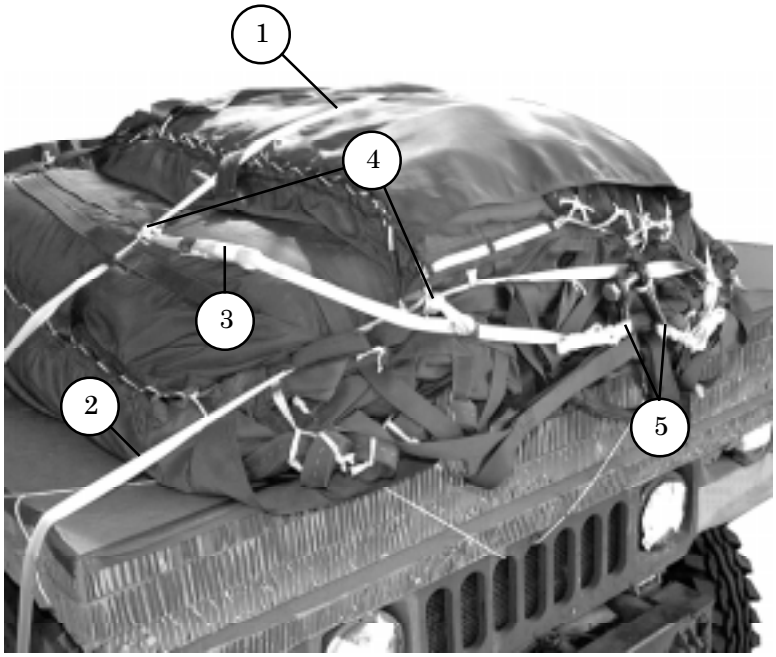
5. Tie the free end of each release strap to the large clevis grouping the bridles. Use three alternating half hitches and an overhand knot in each running end. Make sure that the parachute release straps are not routed under the parachute restraint or parachute bridles. Make sure that the release straps are shorter than the parachute bridles to ensure that the deployment force is applied to the strap before the bridles.

6. Fold or roll any excess strap, and tape the folds in place.

Figure 3-19. Multicut Parachute Release Straps Installed on Two Side-by-Side Parachutes

b. Three and Four Parachutes. The restraint system for three and four cargo parachutes consists of two lengths of type VIII nylon webbing (restraint straps) and two multicut parachute release straps. Restrain three and four cargo parachutes as shown in Figures 3-20 and 3-21.

Note: Always use multicut parachute release straps in pairs.

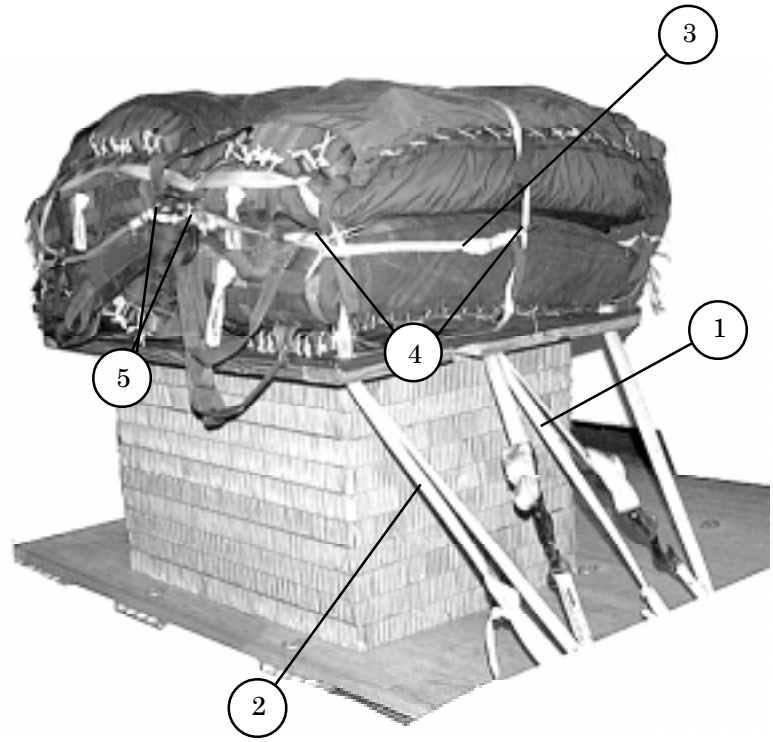


1. Run the first restraint strap through the center carrying handles on the left side of the parachutes. Run the restraint strap over the top of the parachute and down through the right carrying handles. Tie the ends of the restraint strap to the load as described in Figure 3-22.
2. Run the second restraint strap through the outside front carrying handle of the bottom left parachute, up through the top left front carrying handle and both bridle attaching loops of the top parachute for the cotton bags or through the parachute restraint strap loops for the nylon bag, and down through the outside front carrying handles of the top and bottom right parachute. Tie the restraint strap to the load as described in Figure 3-22.
3. Remove guillotine knife number 3 (Figure 2-3) from each of two multicut parachute release straps. Fold the unused loops, and tape the folds in place.
4. Close and safety tie the guillotine knives as shown in Figure 3-18.
5. Tie the release straps to the large clevis as in step 4, Figure 3-19.

NOTE: Place the knives around the restraint straps between the carrying handles of the top and bottom parachutes.

Figure 3-20. Three Parachutes Restrained Using Multicut Parachute Release Straps

Note: Always use multicut parachute release straps in pairs.



1. Run the restraint strap through the center carrying handles on the left side of the parachutes. Run the restraint strap over the top of the parachute, and down through the left inside center carrying handle. Continue to run the restraint strap up through the right inside center carrying handle. Run the restraint strap over the right parachute and down to the right outside carrying handles. Tie the ends of the restraint strap to the load as described in Figure 3-22.

2. Run the second restraint strap through the outside front carrying handles of the left parachutes. Run the restraint strap through the bridle attaching loops of the top parachutes for the cotton bags or through the parachute restraint strap loops for the nylon bag, and down through the outside front carrying handles of the right parachutes. Tie the ends of the restraint strap to the load as described in Figure 3-22.

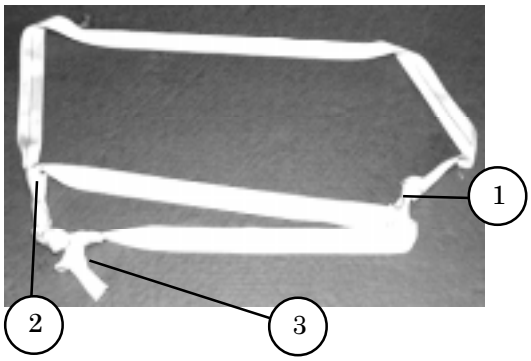
3. Remove guillotine knife number 3 (Figure 2-3) from each of two multicut parachute release straps. Fold the unused loops, and tape the folds in place.

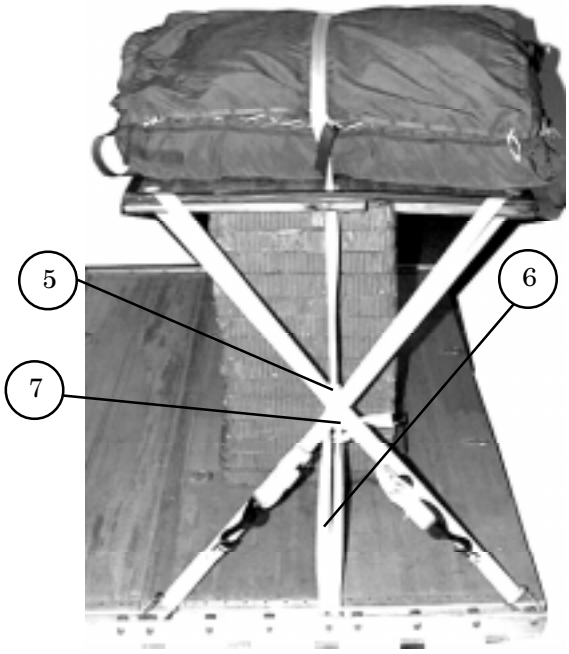
4. Close and safety tie the guillotine knives as shown in Figure 3-18.

5. Tie the release straps to the large clevis as in step 4, Figure 3-19.

NOTE: Place the knives around the restraint straps between the carrying handles of the top and bottom parachutes.

Figure 3-21. Four Parachutes Restrained Using Multicut Parachute Release Straps





When the ends are tied together-

1. Tie a loop in one end of the restraint strap with an overhand knot.
2. Tie a trucker's hitch a suitable distance from the other end of the restraint strap.
3. Run the free end of the restraint strap through the first loop and then back through the trucker's hitch.
4. Pull on the free end until the strap is taut, and tie the free end of the strap with three alternating half hitches and with an overhand knot in the running end (not shown).

When the ends are tied to the load-

5. Tie a trucker's hitch a suitable distance in each end of the restraint strap.
6. Run each free end of the strap through or around the indicated point on the load and back up through the trucker's hitch.

NOTE: The indicated point for tying the parachute restraint strap to the load will be given in the specific rigging chapter.

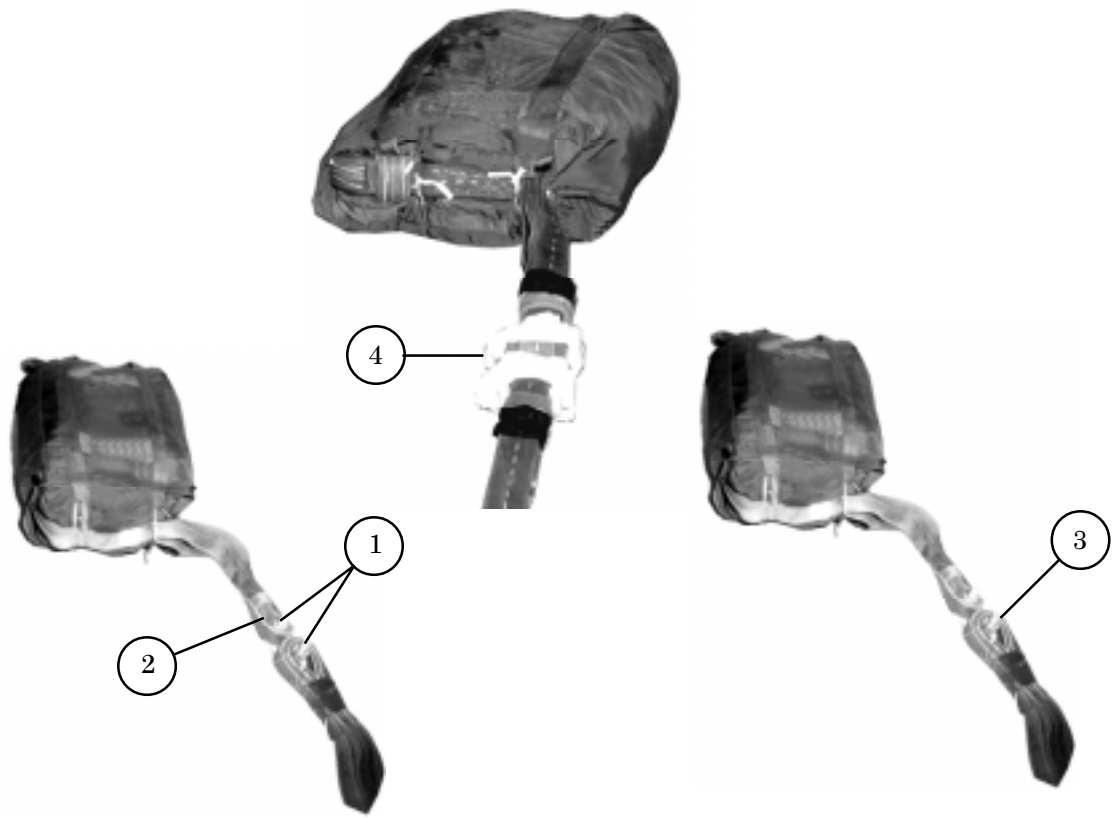
7. Pull on both ends of the restraint strap at the same time. When the strap is taut, tie the ends with three alternating half hitches and an overhand knot in the running end.

Figure 3-22. Restraint Strap Tied

SECTION IV - DEPLOYMENT LINE AND PARACHUTE

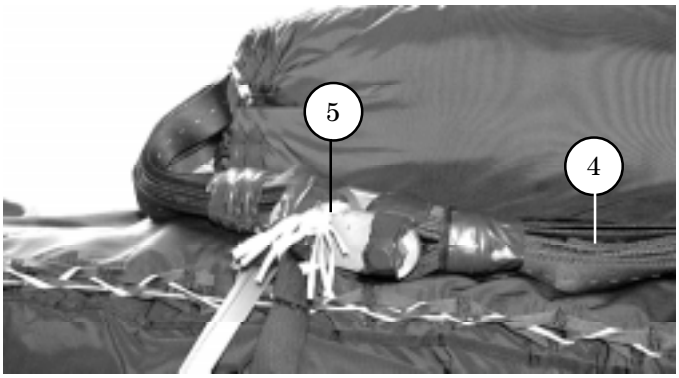
DEPLOYMENT LINE

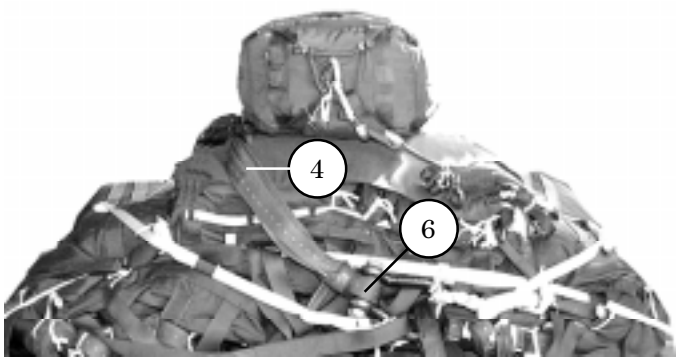
3-19. The 3-foot (4-loop), type XXVI nylon webbing sling is used as the deployment line for DRAS airdrop and connects the deployment parachute to the cargo parachutes. Adapt the procedures as shown in Figure 3-23 to connect the deployment line.



1. Place a large spacer on each bolt of the 3 3/4-inch two-point link.
2. Fit the adapter web loop on one of the spacers attached in step 1 above.
3. Fit the loop of the 3-foot deployment line on the free spacer of the 3 3/4-inch two-point link.
4. Bolt the side plate to the 3 3/4-inch two-point link. Use a wrench to tighten the nuts. Run a length of tape around the link and over each nut and bolt end.

Figure 3-23. Deployment Line Attached





(4) Route the deployment line around the right side of the deployment parachute.

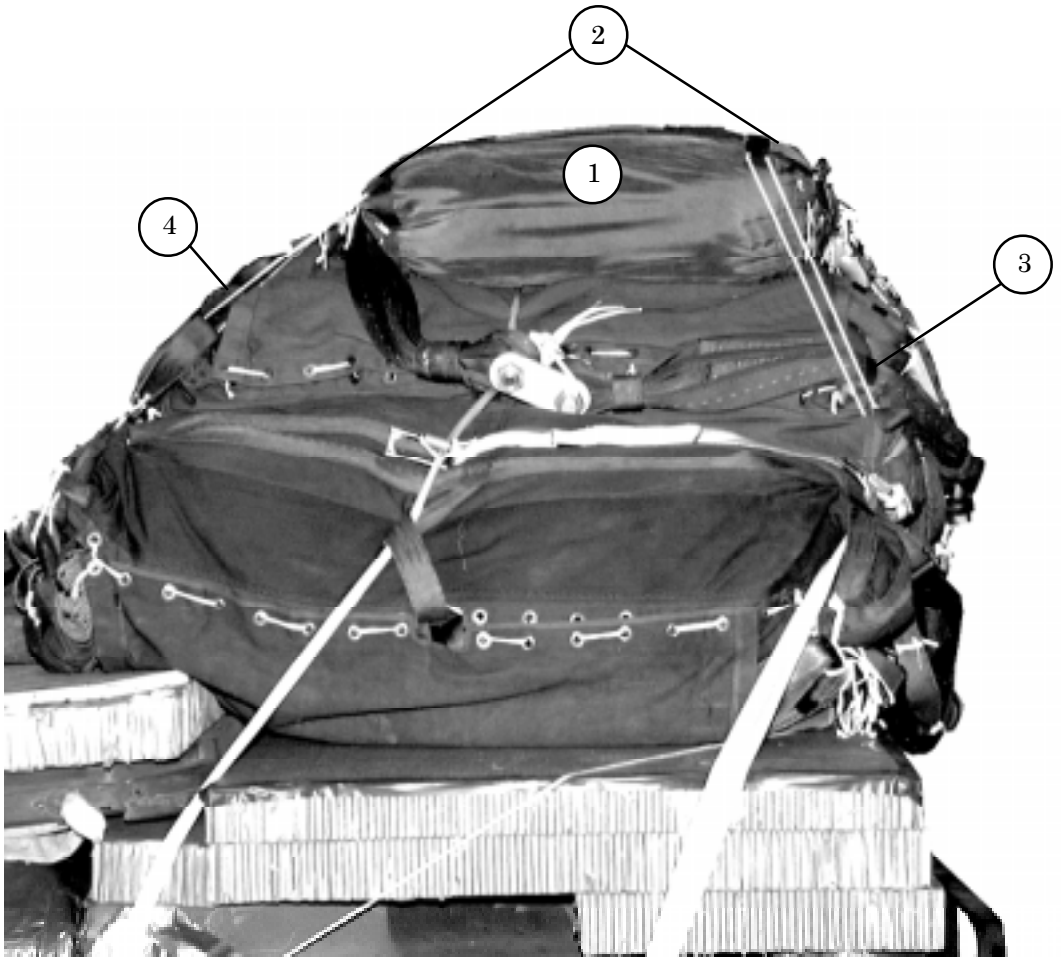
(5) Safety tie the 3 3/4-inch two-point link to the right center carrying handle of the G-11D parachute with five lengths of type I 1/4-inch cotton webbing.

(6) Connect the other end of the deployment line to the bolt of the large clevis that groups the cargo parachute bridles together.

Figure 3-23. Deployment Line Attached (continued)

POSITIONING AND SECURING THE DEPLOYMENT PARACHUTE

3-20. Position and secure the deployment parachute as shown in Figure 3-24.



1. Position the deployment parachute centered on top of the G-11D cargo parachutes with the apex to the front and the taped V-rings facing up.
2. Route a length of 1/4-inch cotton webbing through each top clustering loop on the deployment parachute deployment bag.
3. Tie the lengths of 1/4-inch cotton webbing on the front clustering loops to the front carrying handles on the G-11D cargo parachutes.
4. Tie the lengths of 1/4-inch cotton webbing on the rear clustering loops to the rear carrying handles on the G-11D cargo parachutes.

Figure 3-24. Deployment Parachute Positioned and Secured

SECTION V- RELEASE ASSEMBLIES

M-1 CARGO PARACHUTE RELEASE

3-21. Test, attach, and safety the M-1 cargo parachute release as follows:

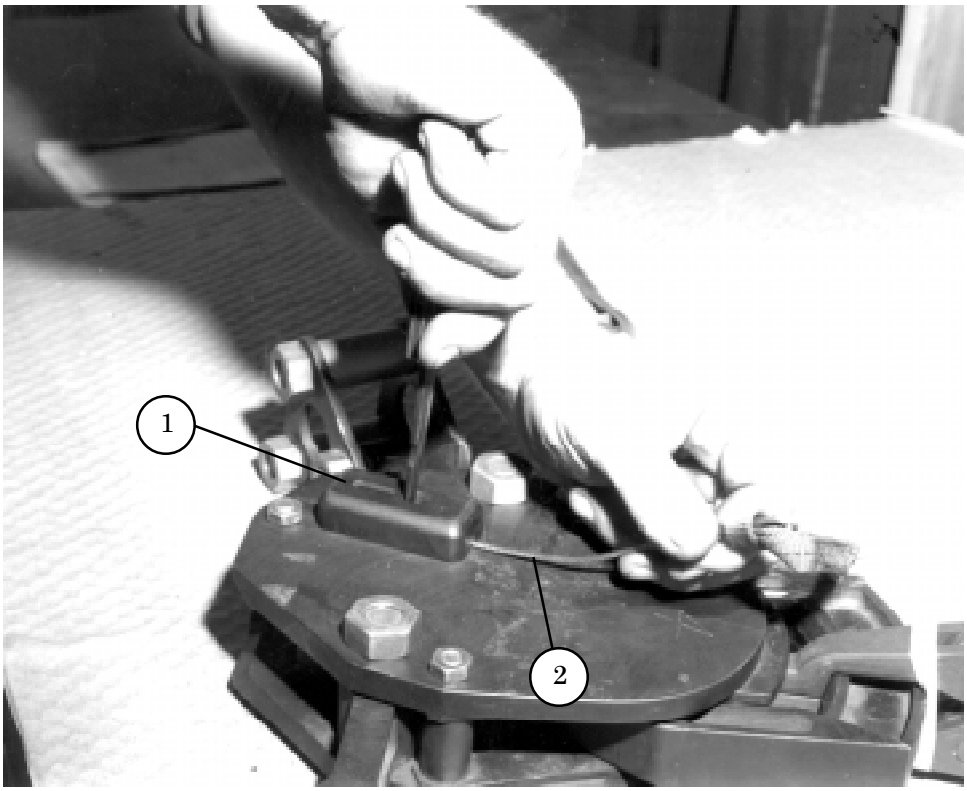
a. Testing Timer. Before each use, seat, arm, and test the delay timer as shown in Figures 3-25 through 3-27.

(1) Align and center the upper suspension link with the release side plates.

CAUTION
If the timer is not correctly seated in the upper position in the release when it is armed, the keys will not fit into the slots in the back side plate and could damage the timer.

(2) Reach between the side plates, and slide the timer up until the toggles fit in the toggle lock slides, making sure the timer slides freely. You should be able to see the winding shaft of the timer through the guide block winder access hole.

Figure 3-25. Delay Release Timer Seated



1. Put the tip of a flat-tip screwdriver through the guide block winder access hole and into the slot in the timer winding shaft. Gently turn the shaft one-quarter turn to the right and stop, holding the shaft with the screwdriver.

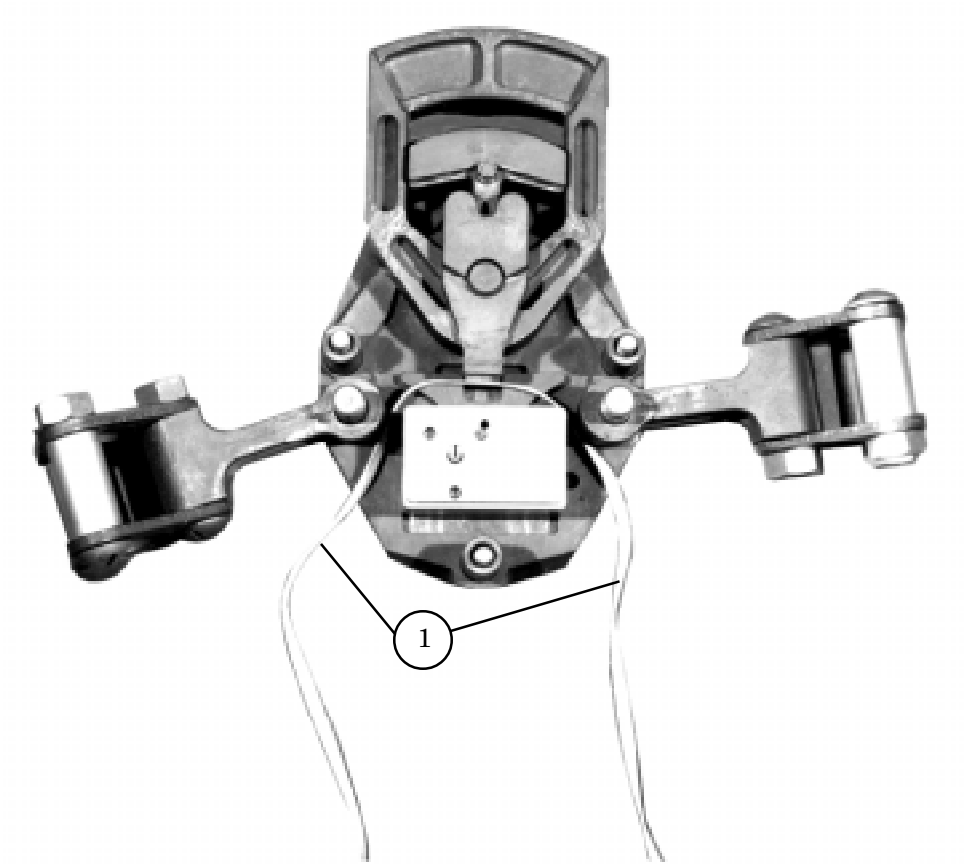
   NOTE: If the winding shaft is hard to turn, hold the shaft with the screwdriver and move the timer around until the keys align with the slots in the back plate.

2. Hold the shaft, and push the arming wire down through the hole in the guide block and the hole in the winding shaft.

   NOTE: When the timer is correctly armed, about 1/2 inch of the arming wire can be seen through the slot below the guide block winder access hole.

Figure 3-26. Timer Armed

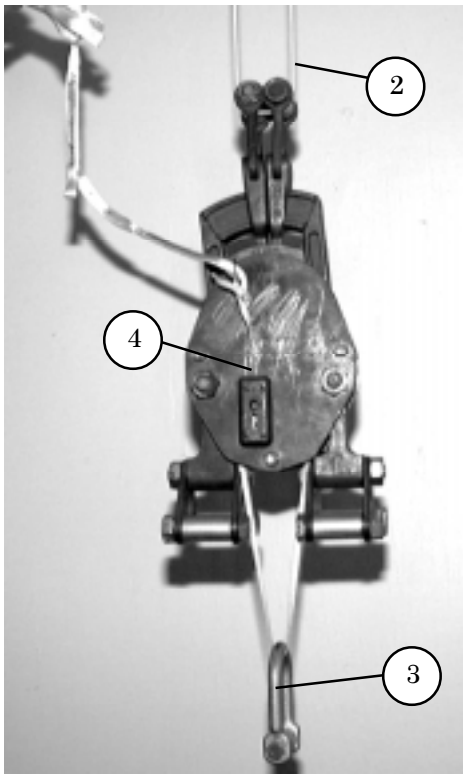
NOTE: A delay release timer will be tested before each use.

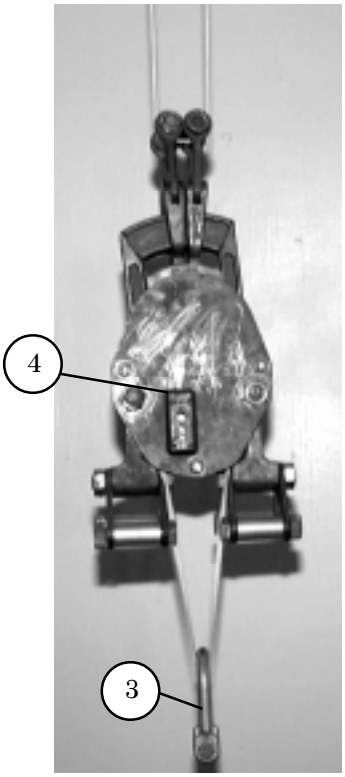


1 Pass a length of type I, 1/4-inch cotton webbing up between the release side plates, over and around the center of the timer, and back down between the side plates. The side plate and a toggle lock slide have been removed to show how the webbing passes around the timer.You may use a length of wire to help you pass the webbing around the timer.

Figure 3-27. Timer Tested

CAUTION
Do not over tighten the face side plate. Make sure the bolts are tightened in an alternating sequence.





(2) Hang the release in a straight, level position.

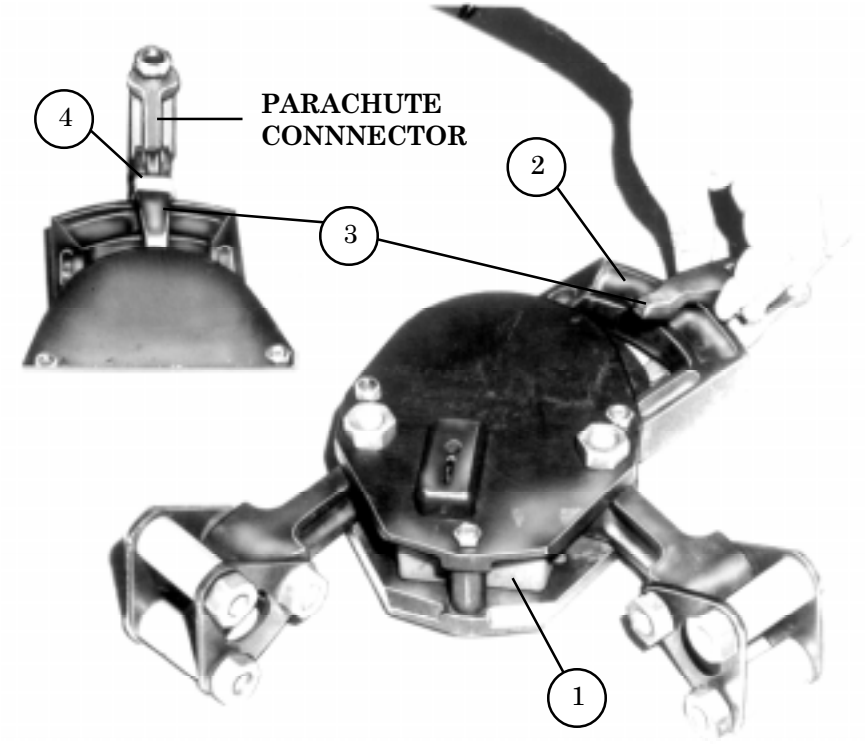
(3) Tie a 10-ounce weight, such as a platform clevis with bolt or a parachute release connector, without the nut and bolt, to the type I, 1/4-inch cotton webbing.

(4) Pull the arming wire from the timer. Count the seconds from the time the wire is pulled until the timer falls within the release.

NOTE: If the timer fails to fall after the alloted time (12 to 16 seconds), remove the side plate and check the four screws holding the arming wire guide block to the side plate for burrs. If the screw heads are burred, remove the burrs by filing or replace the screws. Retest the timer. If there is a second failure, remove and replace the timer.

Figure 3-27. Timer Tested (Continued)

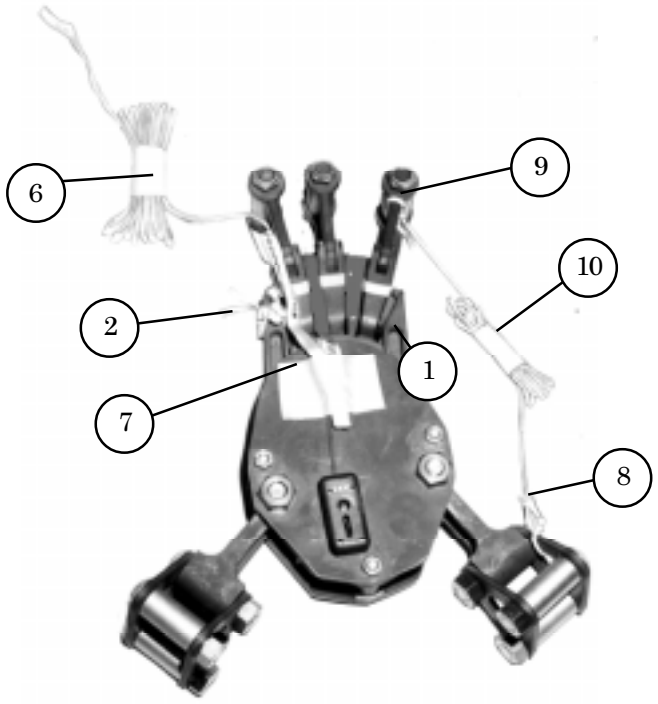
b. Preparing, Attaching, and Safety Tieing Release. Prepare, attach, and safety tie the M-1 cargo parachute release as shown in Figures 3-28 through 3-30.



1. Use an M-1 release with a tested timer and make sure that the delay release timer is down in the housing of the release.
2. Move the upper suspension link to the right or the left as far as it will go.
3. Open the arms of a parachute connector, and fit the arms on the upper suspension link with the tips together in the groove of the retaining clamp.

   NOTE: One parachute connector will be fitted to the upper suspension link for each cargo parachute used on the load.
4. Fit a retainer band around the parachute connector to aid in assembly.

Figure 3-28. Parachute Connector Fitted to Upper Suspension Link of M-1 Release



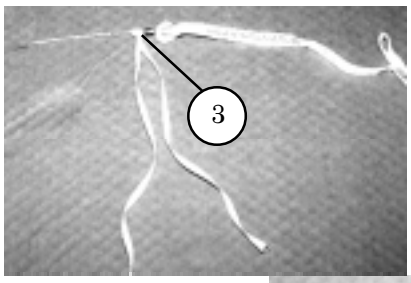
1. Move the upper suspension link back to the center of the release and arm the timer as indicated in Figures 3-23 and 3-24.

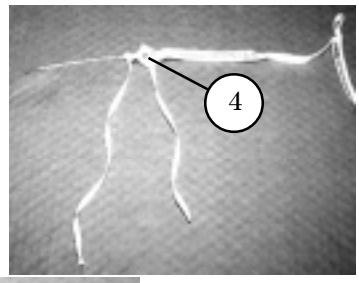
2. Safety tie the arming wire lanyard to the upper suspension link with a double length of type I, 1/4-inch cotton webbing with a surgeon's knot and a locking knot.

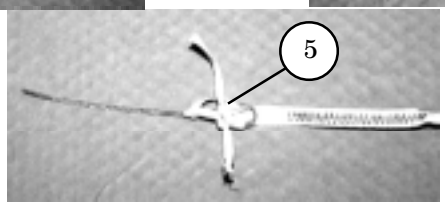
CAUTION

The end loop of the arming wire may pull free from the crimping sleeve during parachute deployment. To ensure that the arming wire disengages from the timer stem, an arming wire safety tie must be installed on all arming wires prior to use on an airdrop operation.

Figure 3-29. M-1 Release Prepared







NOTE: With the arming wire lanyard attached to the arming wire loop, the arming wire loop shall be designated as the top. Install the safety tie as follows:

This safety tie should be inspected at the joint airdrop load inspection, before and after loading.

(3) Girth hitch a 12-inch length of 1/4-inch cotton webbing on the safety wire just below the metal fastener.

(4) Route one running end of the 1/4-inch cotton webbing through the looped ends of the arming wire and lanyard.

(5) After ensuring there is 1/2 inch to 1 inch of slack in both running ends, tie a surgeon's knot and locking knot in the 1/4-inch cotton webbing.

(6) Fold the slack in the lanyard, and tape the folds in place with one turn of masking tape.

(7) Fold the slack in the lanyard, between the safety tie and the arming wire, and tape the fold to the face side plate with one piece of masking tape.

NOTE: Include the following data on the masking tape: name, date, and timer seconds.

(8) Tie one end of a 5-foot length of type III nylon cord (dragline) to one side of the lower suspension link.

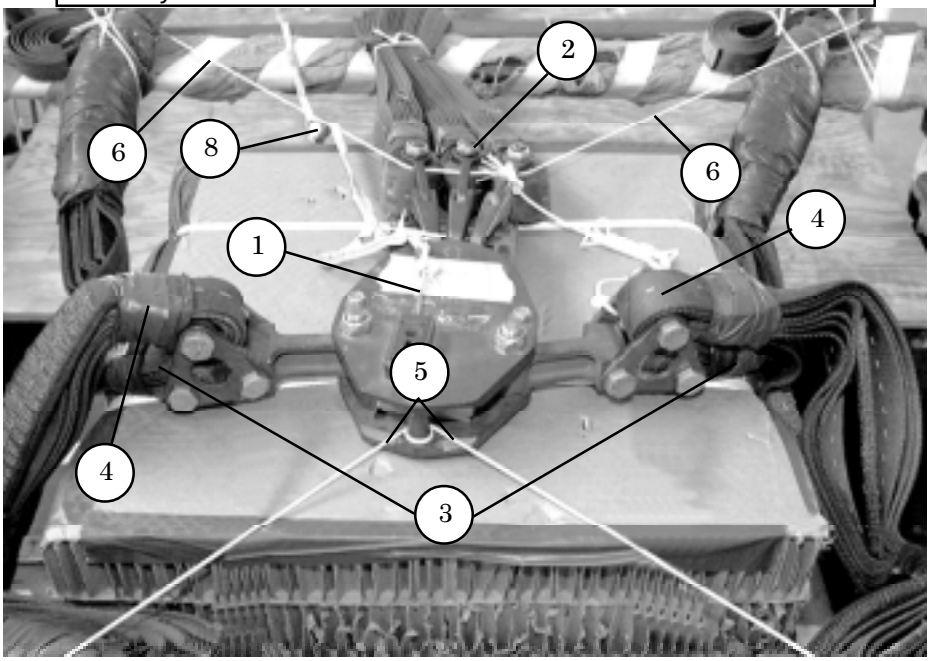
(9) Tie the other end of the dragline to a parachute connector.

(10) Fold the slack in the dragline and tape the folds in place with one turn of masking tape.

Figure 3-29. M-1 Release Prepared (Continued)

CAUTION

Place the release on the load with the parachute connectors toward the front of the platform and with the guide block up. Bolt the suspension slings to the lower suspension links so that they will not change position when the load is suspended. Make sure the arming wire lanyard is routed over all items.



1. Put the release on the load as instructed in the specific rigging chapter for the load.
2. Bolt the riser extensions of the G-11D cargo parachutes to the parachute connectors already fitted to the release.
3. Attach the front suspension slings to the lower bolts of the lower suspension link. The front slings will have a half twist towards the parachutes.
4. Attach the rear suspension slings to the top bolts of the lower suspension link.

NOTES: 1. The keeper at each end of the sling must be drawn snugly against the object on which the sling is fitted.
2. Suspension slings on DRAS loads will have the nylon buffers removed to fit on the lower suspension links of the M-1 parachute release assembly.

5. Run a length of type III nylon cord to encircle the lower spacer, and tie the ends of the cord to points on the rear of the load or platform.
6. Run a length of type III nylon cord through the parachute connectors, and tie the ends of the cord to points on the front of the load or platform.
7. Tie the lanyard to a carrying handle of a parachute with three alternating half hitches and an overhand knot in the running end (not shown).
8. Fold the slack in the lanyard, and tape the folds in place with one turn of masking tape.

Figure 3-30. M-1 Release Attached and Safetied to Load

ATTACHING PARACHUTE RISERS TO THE PARACHUTE RELEASE

3-22. Lay the parachute release on top of the load with the bolt end of the parachute connectors toward the cargo parachutes. Bolt the parachute riser extensions to the parachute connectors of the M-1 parachute release as shown in Figure 3-31.

NOTE: Bolt the parachute riser extensions to the parachute connectors from rigger's left to right. They must be in the numerical order given for four parachute loads.

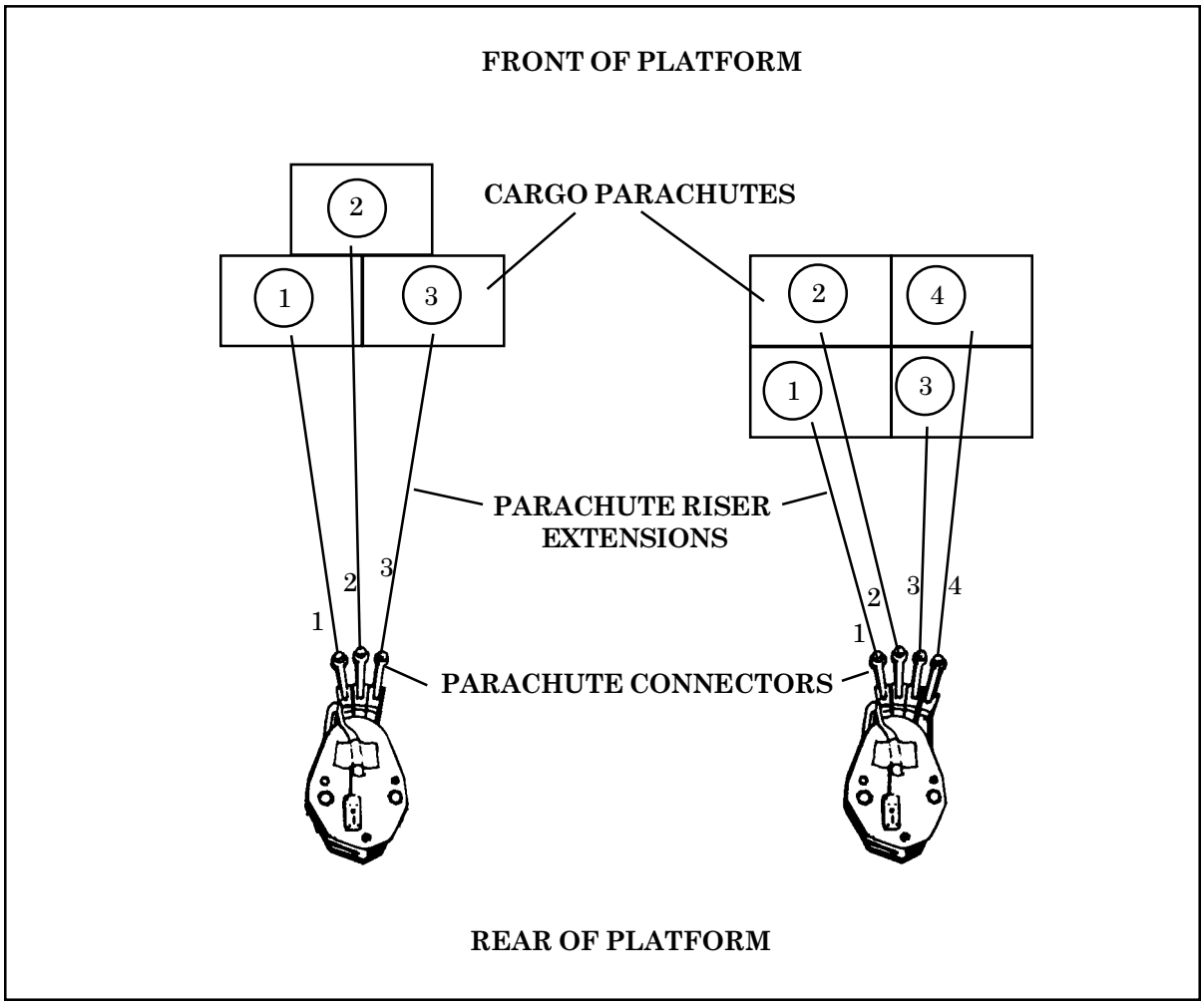


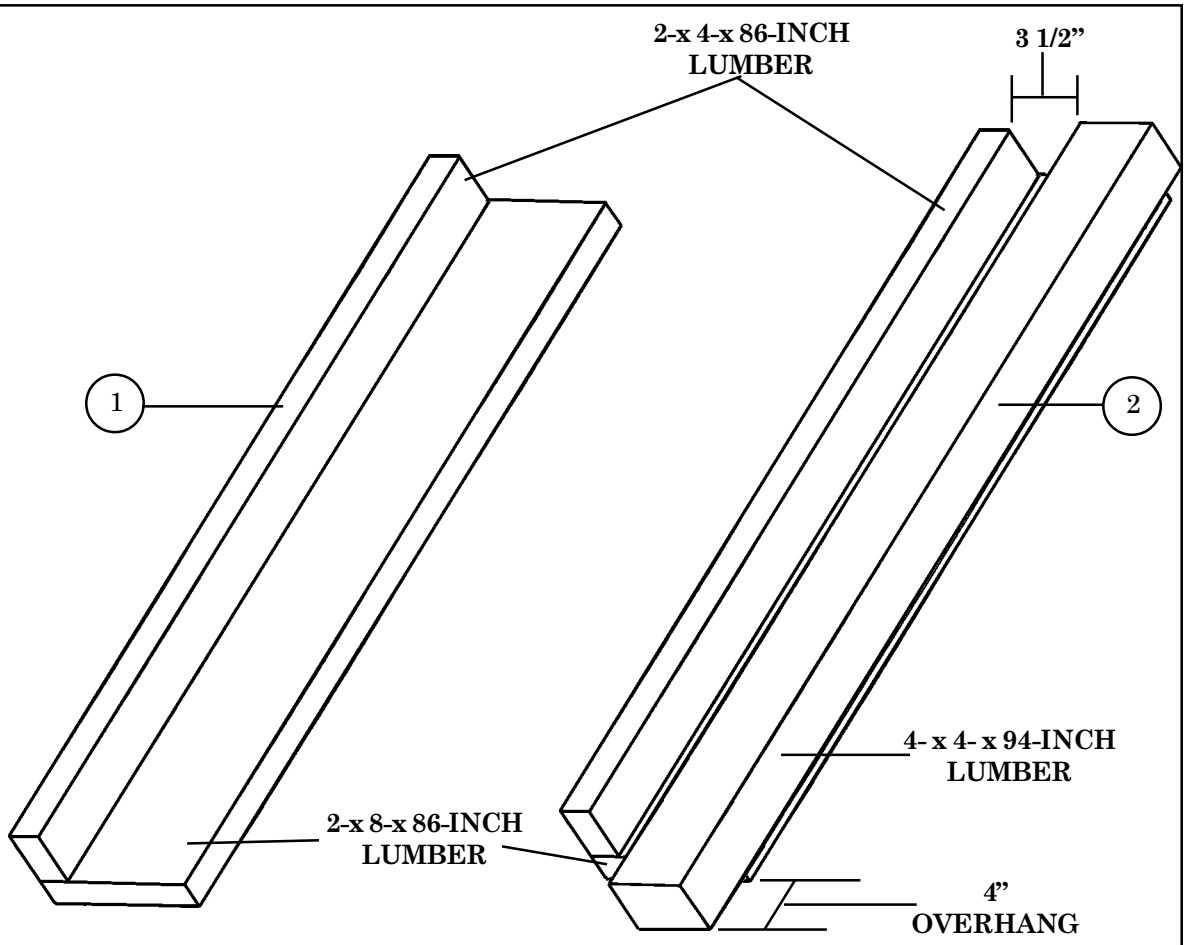
Figure 3-31. Three and Four Parachute Riser Extensions Attached to the Parachute

SECTION VI - ATTITUDE CONTROL SYSTEM (ACS)

ATTITUDE CONTROL SYSTEM

3-23. Assemble and inspect two attitude control systems for each load as follows:

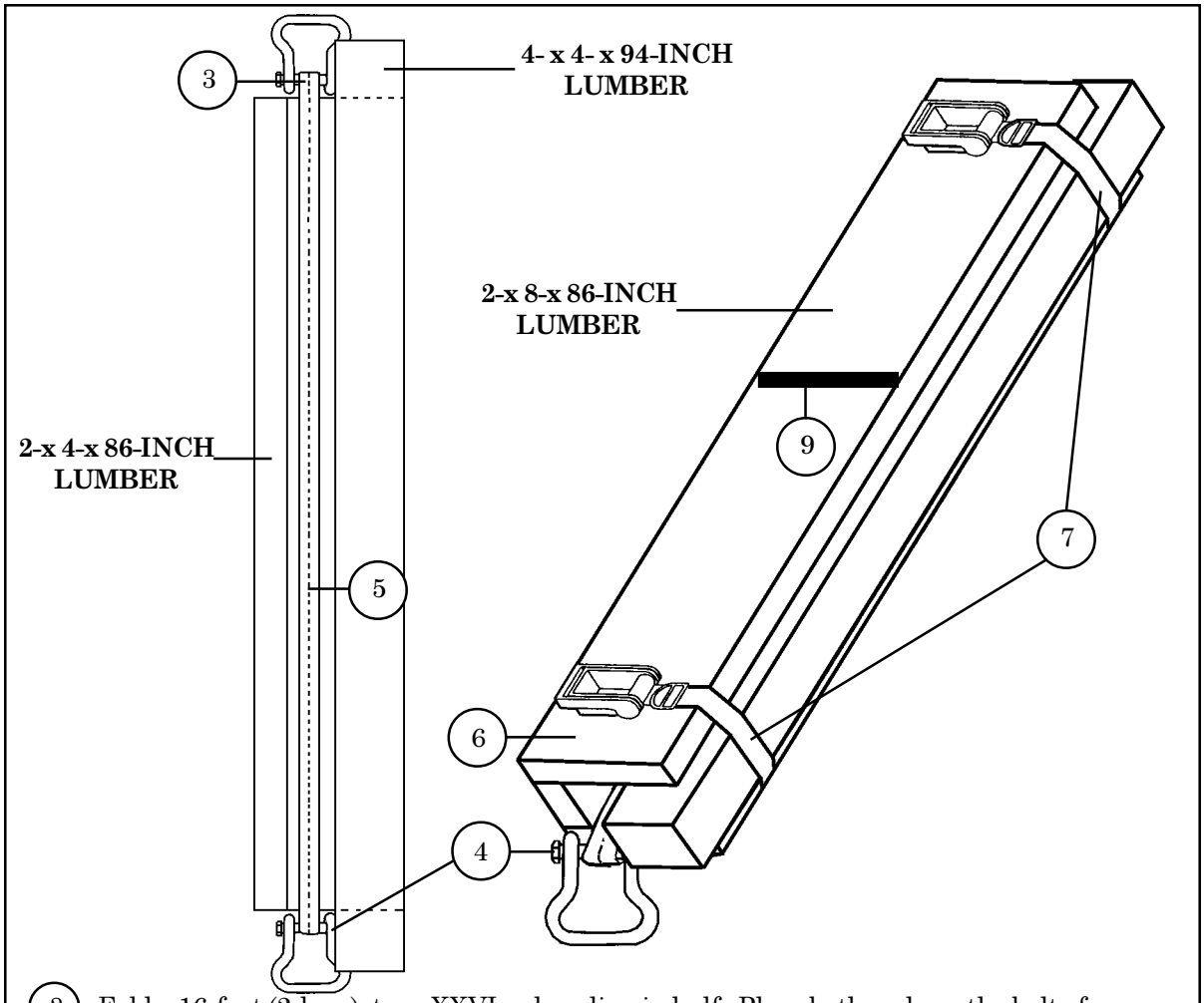
a. Assembling the ACS. Assemble the ACS as shown in Figure 3-32.



1. Place a 2-x 4-x 86-inch piece of lumber flush along the rear edge of a 2-x 8-x 86-inch piece of lumber and nail at 6 inch intervals using 16d nails.
2. Center a 4-x 4-x 94-inch piece of lumber on the 2-x 8-x 86-inch lumber, 3 1/2-inches from the the 2-x 4-x 86-inch lumber. Nail at 6 inch intervals using 16d nails.

NOTE: The 4-x 4-x 94-inch lumber should over hang each end of the 2-x 8-x 86-inch lumber by 4 inches.

Figure 3-32. Attitude Control System Assembled



(3) Fold a 16-foot (2-loop), type XXVI nylon sling in half. Place both ends on the bolt of a medium or large clevis.

(4) Place the bolt of a second medium or large clevis through the fold of the sling.

(5) Center the folded sling and clevises in the trough of the ACS with the clevises extending from each end.

(6) Place a 2-x 8-x 86-inch piece of lumber flush along the rear edge of the 2-x 4-x 86-inch piece of lumber. Nail the lumber at 6 inch intervals along both sides using 16d nails.

NOTE: Ensure NO nails are protruding through the inside of the ACS.

(7) Route two CGU-1/B tiedown straps or two A7A cargo slings around the ACS 4 inches from each end.

(8) Pad the CGU-1/B tiedown straps or A7A cargo slings with felt and secure the felt with cloth-backed tape (not shown).

(9) Mark the center of the ACS so it is visible from the ground.

Figure 3-32. Attitude Control System Assembled (continued)

b. Inspecting the ACS. Inspect the ACS for the following items:

(1) Lumber. Inspect the lumber for splits or excess damage. If the damage interferes with the proper functioning of the ACS, discard and use a new ACS.

(2) Slings. Inspect the slings according to TM 10-1670-296-20&P/ TO 13C7-49-2. Ensure the slings move freely through the ACS.

(3) Clevises. Inspect the clevises according to TM 10-1670-296-20&P/ TO 13C7-49-2.

(4) Servicable slings and clevises may be used on another ACS.

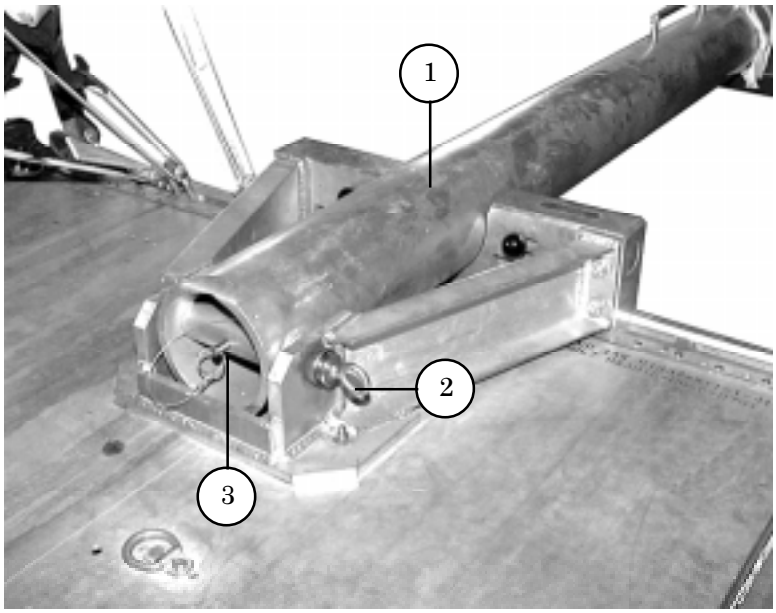
SECTION VII - INSTALLING OUTRIGGER ASSEMBLY

PLATFORM FITTING ASSEMBLY (PFA) WELDMENT AND LINK ASSEMBLIES

3-24. The PFA weldment and the link assembly are designed to be installed on either platform siderail. Assemble and install the PFA weldment and the link assembly on the DRAS platform according to TM 10-1670-268-20&P/TO13C7-52-22.

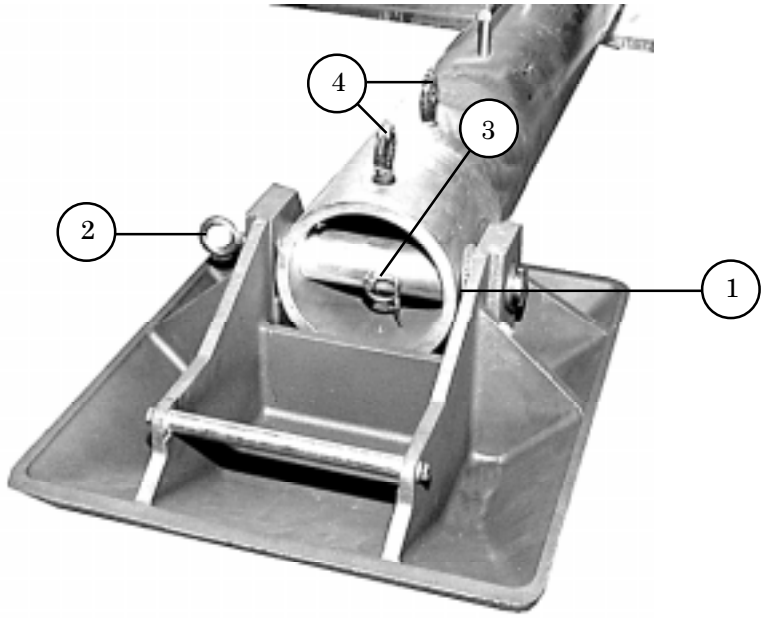
OUTRIGGER MAST AND FOOT

3-25. The outrigger mast and foot are interchangeable and may be used on either side of the platform. Assemble, install, and safety the mast and foot on the DRAS platform according to TM 10-1670-268-20&P/TO13C7-52-22 and as shown in Figures 3-33 through 3-36.



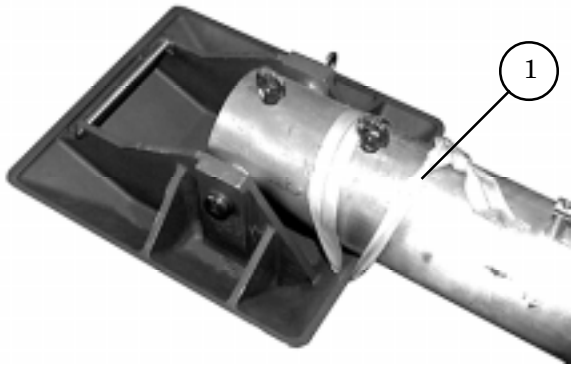
1. Place the mast in the PFA weldment in the horizontal position aligning the shaft hole in the mast with the sleeve bearings in the PFA weldment.
2. Insert the mast pivot pin through the bearing and the mast from rear to front.
3. Looking inside the bottom of the mast, align the hole in the mast pivot pin with the hole in the mast and insert the ball-lock pin.

Figure 3-33. Mast Installed



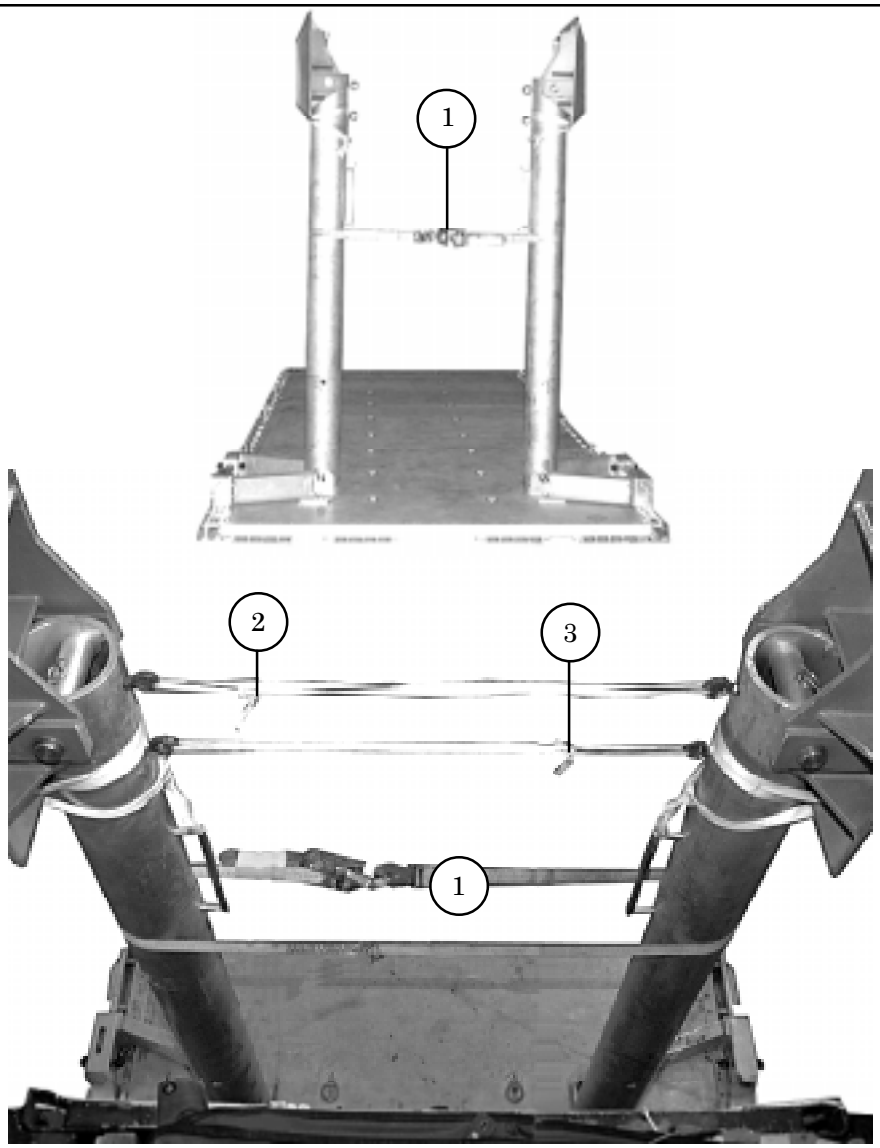
1. Place the foot at the end of the mast aligning the pivot pin hole in the mast with the sleeve bearings in the foot.
2. Insert the pivot pin through the bearing and the mast from rear to front.
3. Looking inside the end of the mast align the hole in the mast pivot pin with the hole in the mast and insert the ball-lock pin.
4. Tape the eyebolts with cloth-backed tape leaving the eyes open.
5. Repeat steps 1 through 4 on the opposite side.

Figure 3-34. Foot Installed



1. Place a length of type VIII nylon webbing between the eyebolts on the mast. Run the ends through the inside holes of the foot. Secure the ends together, with a trucker's hitch knot, on top of the mast. Repeat on the opposite side.

Figure 3-35. Foot Safety Tied



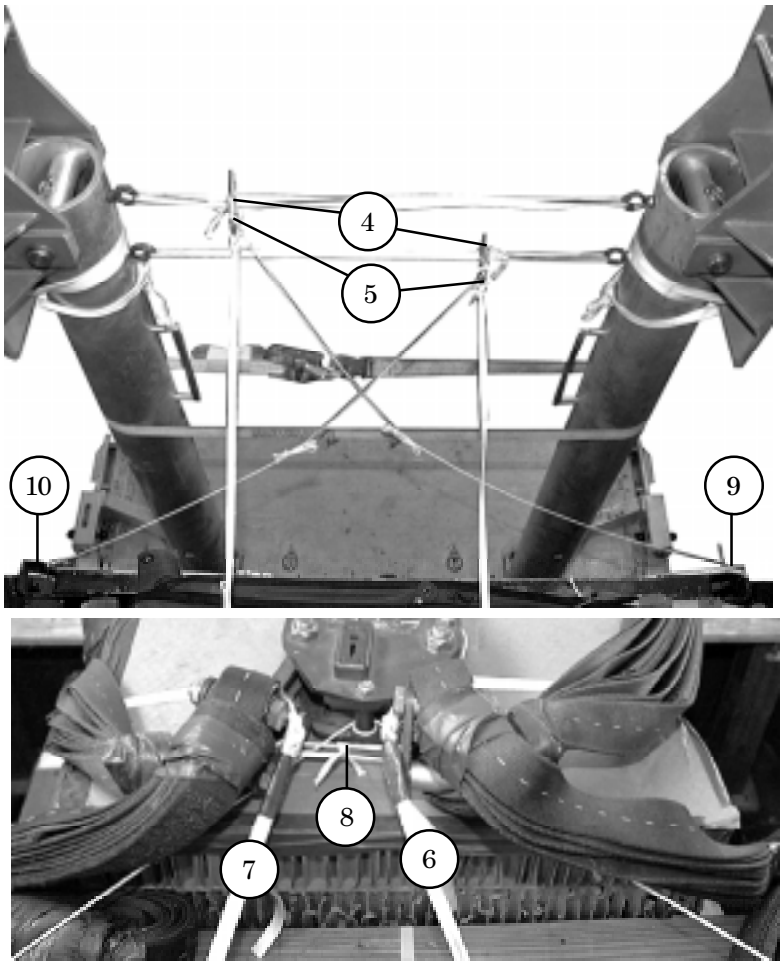
(1) Raise both outriggers to the vertical position and route a CGU-1B tiedown assembly around both masts.

NOTE: The CGU-1B tiedown assembly must be removed by the aircrew prior to airdrop.

(2) Form an outrigger vertical restraint tie by routing a length of 1/2-inch tubular nylon webbing through the top eyebolt on both masts. Tie the ends together 6 inches from the right mast eyebolt using a trucker's hitch.

(3) Form a second outrigger vertical restraint tie by routing a length of 1/2-inch tubular nylon webbing through the bottom eyebolt on both masts. Tie the ends together 6 inches from the left mast eyebolt using a trucker's hitch.

Figure 3-36. Masts Safety Tied



(4) Install and safety tie a guillotine knife around each outrigger vertical restraint tie as shown in Figure 3-18. Ensure the knives are installed against the knots.

(5) Tie a length of 1/2-inch tubular nylon webbing to the body of each guillotine knife. The length of the webbing is given in the specific chapter for the item being rigged.

(6) Tie the webbing from the right guillotine knife to the right lower suspension link of the M-1 parachute release assembly with three alternating half hitches and an overhand knot. Tape the running end to the 1/2-inch tubular nylon webbing.

(7) Repeat step 6 using the left guillotine release knife and the left lower suspension link.

(8) Tie the lower suspension links together as close as possible with one turn single, type I 1/4-inch cotton webbing. Ensure the tie is under the 1/2-inch tubular nylon webbing ties.

(9) Tie a length of type III nylon cord to the left point indicated in the specific rigging chapter. Tie the other end of the type III nylon cord to the body of the top guillotine knife. The length of thecord is given in the specific chapter for the item being rigged. S-fold the slack in the type III nylon cord and secure with masking tape.

(10) Repeat step 9 using the right point indicated in the specific rigging chapter and the bottom guillotine knife.

Figure 3-36. Mast Safety Tied (continued)

SECTION VIII - LOAD MARKING AND INSPECTION

MARKING RIGGED LOAD

3-26. Each rigged load must have a data tag prepared for it, and some rigged loads may require a Shipper's Declaration for Dangerous Goods. The center of balance must also be clearly marked on both sides of the platform.

a. ***Data Tag.*** A data tag is prepared and secured on the rear of each platform load. Entries on the tag are used by the Army and Air Force in making inspections and in finding causes for malfunctions. The entries are also used to help the loadmaster determine where to place the load in the aircraft. Use a ballpoint pen or other waterproof marking device to record the following information on the tag:

(1) Total rigged weight.

(2) Height, including parachutes.

(3) Width.

(4) Overall length.

(5) Overhang (specify front, rear, or side of load).

(6) Longitudinal center of balance (measured from the front edge of the platform).

b. ***Shipper's Declaration for Dangerous Goods.*** This form is prepared and secured on each load that has any type of hazardous material such as fuel, ammunition, or a battery.

c. ***Center of Balance.*** In addition to being included on the data tag, the longitudinal center of balance must also be marked on the platform. The vertical line of the symbol CB is placed at the center of balance on both sides of the platform.

TYPES OF INSPECTIONS

3-27. The types of inspections performed on a rigged load are the final rigger inspection, the before-loading inspection, and the after-loading inspection. All rigged DRAS loads must be inspected at prescribed intervals to make sure that the loads and the equipment used on the loads are assembled and installed to meet the criteria outlined in the specific rigging chapter.

a. ***Final Rigger Inspection (Shop Final).*** After the load has been completely rigged, a certified Transported Force Rigger Inspector performs the final rigger inspection. This inspection is accomplished before the rigged load leaves the rigging site to make sure it is rigged according to the specific chapter for that particular load. This inspection should be conducted by an inspector other than the rigger supervising the installation of parachutes and deployment system. It is not necessary to use the DD Form 1748-series inspection forms for this inspection.

b. ***Before-Loading Inspection.*** A before-loading inspection must be performed on a rigged load before it is loaded into the aircraft. This inspection is conducted jointly by a certified Transported Force Rigger Inspector and a certified Air Force Joint Airdrop Inspector. The inspec tors use the proper joint airdrop inspection record, and both sign the appropriate blocks to certify correct rigging of the load. When the rigged load is delivered to the aircraft, the aircraft loadmaster checks the inspection form for completion and necessary signatures before accepting the load.

c. ***After-Loading Inspection.*** After the loadmaster completes the loading and in-aircraft rigging, the after-loading inspection is performed. This inspection is conducted jointly by a certified Transported Force Rigger Inspector, a certified Air Force Joint Airdrop Inspector, and the aircrew loadmaster. After the inspection is completed, the three inspectors certify, by signing the form, that the load is ready to airdrop.